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RESEARCH STUDIES
of the
STATE COLLEGE OF WASHINGTON

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RESEARCH STUDIES of the STATE COLLEGE OF WASHINGTON

Volume XII

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Number 1

HUMAN RELATIONS IN FORESTRY¹

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Because in this third year of World War II, the president of the Pacific Sociological Society has had no opportunity to address the entire membership, this paper will serve both as a presidential message and as a report of certain activities of interest to sociologists.

May I first thank all of you who by service upon committees and by payment of your membership dues have helped keep the Society a going concern. Doctor Ray Baber, program chairman, Doctor Calvin Schmid, secretary-treasurer, and Doctor Carl Reuss, editor, have had particularly heavy tasks which they have carried out efficiently and selflessly.

No doubt most of you share with the president a keen sense of loss because of the cancellation for the second consecutive year of our annual meeting. This loss may be partially offset by increased contacts in other fields, for many members of this Society are directly connected with the war effort or are in essential home-front activities. Unfortunately, there is no compilation of these important contributions made by our membership, but the list would be long.

As one example of the war-time services and contributions of our Society members, your president, in addition to carrying on a full "trimester" V-12 teaching load, has served for six months on a Wages and Hours Committee of the United States Department of Labor (which required several week-end trips to New York), has directed a fortnightly community forum in a defense area, and has been a consultant to the U. S. Forestry Service "to study human relations in the San Bernardino National Forest" under the California Council on Human Relations in Forestry. Because this latter organization may be of much interest to sociologists and because sociologists can contribute to its ultimate success, it will be considered in the rest of this paper.

About five years ago the American Association for the Advancement of Science established an Advisory Council on Human Relations

¹ Presidential message.

to work with governmental agencies on the broad subject of human relations in the field on conservation. The United States Forest Service is one governmental agency whose primary concern even in peace time is conservation but whose responsibilities for conservation are multiplied manifold by the exigencies of war. Leaders of the Forest Service lately have recognized that social scientists as well as the forestry technicians may have an important contribution to make to the task of protecting the great resources of the national forests, administering their use, and conserving them. The Forest Service leaders have recognized also that social scientists are especially well equipped to assist in developing personnel policies, programs for training foresters, public relations approaches, and fire-control programs, insofar as educational techniques can be useful.

Accordingly, responsible officials of the U. S. Forest Service requested the American Association for the Advancement of Science, through its Advisory Council on Human Relations, to establish regional councils on human relations in forestry in the various regions of the country. In line with this request, conferences on Human Relations in Forestry were held early in 1943 at three Pacific Coast cities—Portland, Berkeley, and Los Angeles—under the sponsorship of the Advisory Council on Human Relations of the A. A. A. S. Present at these exploratory conferences were representatives of the A. A. A. S., the Forest Service, and social scientists from near-by colleges and universities. Later in 1943 a second conference was held in each of the three cities for the specific purpose of establishing a Regional Advisory Council on Human Relations in Forestry for each of the three areas.

Each of these regional councils is an advisory body composed of psychologists, sociologists, anthropologists, and economists which meets occasionally with Forest Service officers to plan and develop research procedures in the problems of human relations facing the Forest Service. A fundamental purpose of the councils is to draw social scientists actively into the fields of planning for the most intelligent use of resources and of setting up and implementing those educational and action programs that will win public acceptance for the best use of resources. In furtherance of this purpose, the regional Advisory Council is expected to stimulate social scientists in its region to work on human-relations problems prominent in its area, to provide advisory assistance in formulating and carrying through such projects as were initiated at its suggestion, and to review and transmit approved regional reports of

progress in research to the parent Advisory Council on Human Relations. Each regional council, it might be added, is given a high degree of autonomy, but its membership is named by the parent body, which also requests the right to review reports on regional research projects before these reports are published

One research project developed by Doctors Floyd Ruch and Franklin Fearing, of the California Advisory Council, already has been used throughout the nation. It is a testing procedure to learn popular reaction to posters used in the forest fire-prevention campaign. Two types of tests are used, one to learn for representative posters whether the person considers them pleasing or displeasing, the other given at a later time to determine whether the person recalls having seen each of a larger series of posters, half of which were shown him in the previous test. From these tests can be estimated the type of poster which has the greatest appeal and thus will attract attention most quickly, and the type which is remembered the longest and thus presumably will have the greatest effect on action.

This project indicates one type of contribution that social scientists might make to the work of the Forest Service in one of its critical problem areas—fire prevention. The multiple use of our forest resources for lumber, war materials, fuel, forage, watersheds, homes, recreational areas, and the like, suggests further problem aspects that might become subjects for investigation by social scientists. As Doctor Douglas Freyer, of the parent Advisory Council, told the Berkeley conference, "A forest has no meaning without human beings; it is the habits and attitudes of human beings that we are concerned with. This is a vast area for study."

Some idea of how frequently the genus *Homo* enters the forests for residential and recreational purposes is found in statistics for California, where the forests average 35,000,000 visitors per year. Every summer in the San Bernardino National Forest alone over 50,000 persons live in nearly 16,000 homes. On busy week-ends 30,000 more crowd the resorts to hike, swim, fish, and relax, if possible! On the three days of the July 4, 1941, week-end, 51,000 automobiles with an average of 3.2 persons passed the forest checkers at entrances to this forest. Traffic experts say 2,500 cars per day one way is heavy traffic, yet on this pre-war holiday over 15,000 cars per day crowded through the three main entrances. Because of the war and gasoline rationing, naturally, the crowds on July 4, 1942 and 1943, were somewhat lower.

These figures emphasize that in this forest and in other forests one might study at first hand such topics as crowd psychology, traffic problems, recreation interests, and housing facilities. Moreover, because of the fact that its rainy season occurs during the winter and its summer humidity is low, Southern California forests normally are as dry as a tinder box during the peak vacation months. Fire-control and fire-prevention techniques are imperative and must be effective. Relatively few people fully realize how serious is the forest-fire hazard on the Pacific Coast, although realization that West Coast forests were an objective of the enemy probably made the public more alert to the danger and less careless in its forest habits.

The fire-prevention program in California is an extensive one, but has no very definite pattern. It includes legislation and regulation, education, the permit system, assistance in the necessary use of fire, fire-proofing of areas, actual contact with and supervision of the users of forests, the closure of forests, and the use of the "fag bag" by hunters. As the growing list has failed to attain the prevention objectives, only the net results have been observable. The Forest Service has been using a shotgun or multiple-pellet attack on the problem; hence the effectiveness of particular preventive measures has not been determined. The number of fires per thousand user-days is decreasing, but the total number of fires is still increasing. Therefore it seems necessary to adopt a new approach that will find out more about the social background, attitudes, and behavior patterns of forest users. The U. S. Forest Service has asked the social scientists to assist in this important task.

In another direction there is a demand for increasing the amount of social science training given foresters. Doctor Freyer declared that eighty per cent of the activities of forest service officers relate to human beings and only twenty per cent to matters for which their technical preparation peculiarly fits them. Forest Service leaders have stressed the desirability of recruiting for careers in the Forest Service young men trained in the social sciences. Discussions at the council meetings emphasized the possible role of the social scientists in helping to train foresters to understand their human-relations problems and how to deal with them.

It was apparent from discussions at council meetings and from observations in the field that answers are needed to the following classes of problems. A statement of these broad questions may offer social

scientists some fertile ideas for service and research projects in the fields of practical, every-day problems.

1. *Appeals* What appeals would be most effective in "selling" fire prevention? Would the economic, the patriotic, or the esthetic appeal or the appeals to prestige and self-interest be most productive of results? How can the type of appeal to be used be best determined? To what values or to what basic motivations can appeals be made in order to win popular support of specific forest policies?

2. *Behavior* What do forest users do? What are the best means of studying the behavior of forest residents and of visitors to discover specific acts which endanger the forest?

3. *Attitudes*. Can the attitude of people toward forest fire and its dangers be measured and/or compared with attitudes toward other dangers? Do attitudes toward forest policies, fire hazards, regulations, and so forth, differ in different areas of the Pacific Coast? If so, how, and what changes in general policy are necessary to counteract these differing attitudes?

4. *Smokers' habits* Could laboratory and field studies be made of smokers' behavior and habits comparing actions of those familiar with fire problems (forest rangers?) with average persons, or with those entirely unfamiliar with forest-fire hazards? Are there differences in behavior between men and women, between old and young persons, or among different occupational groups?

5. *Forest publicity* Through what channels can ideas about conservation, forest-fire prevention, and the like, be spread most effectively? How effective are posters? Can posters be pre-tested so as to show their effectiveness? How should signs be placed so as to be read easily from speeding cars? How valuable are hand-bills or instructions given out by guards at forest entrances? How can radio and movies be used more effectively in educating the public?

6. *Redefinition of forest-service problems in terms of behavior* A new functional classification of fires is needed. Such redefinition seems necessary and desirable but difficult because all records and statistics are frozen in the old classifications.

7. *Education and training* What can be done in colleges and universities to interest in the Forest Service young men—and nowadays we must add young women—trained in social sciences? What can be

done in liberal arts colleges and forestry schools to liberalize the curricula in this direction? Could teachers themselves assist the forest officers in the training programs?

No doubt future discussions will show additional phases of supervision and administration where a careful scientific approach would be fruitful to the Forest Service and to society. Some of the above problems are already under study, but since it is expected that the program will continue for several years a detailed report at this time would be premature even if it were possible.

From time to time among social scientists on the Pacific Coast, it has been suggested that some form of cooperative research might be carried on. This has never been tried, at least not on any large scale, possibly because of the lack of an adequate project, the lack of an organization, a narrowly individualistic viewpoint on the part of socially minded social scientists, or simply the pressure of other work. If, however, a proper project is all that is needed, the problems raised by the Council on Human Relations in Forestry may be the adequate answer to a broad-scale cooperative project that could interest social scientists up and down the Pacific Coast.

RETRIBUTIVE JUSTICE AS A CHECK TO FUTURE WARS

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Of the many and widely varied means which are now being proposed for the preservation of the still-to-be-won peace, none is quite so satisfying to the war-weary layman and so likely to be embodied in action as the forthright plan to take vengeance on the enemy. Various described as the punishment of those responsible for the war, as retributive justice, physical and economic, and as military sterilization of the Axis powers, the proposal has a quality of earthy realism in marked contrast to those airy programs for perpetuating the peace that have been conjured up by our professional idealists. But this appearance of realism stems not from the practicality of the plan but from its dramatic appeal.

Perhaps there was a time when war was a definitive affair, the conflict of clan against clan, tribe against tribe, or state against state. One side lost and the other won, and to the victor went the spoils, a tangible profit of lands or goods or slaves. But in the modern world, war has taken on astronomical proportions and bewildering complexities. And because a world at war is beyond human comprehension, all thinking about such war is necessarily thinking about simplified dramatic pictures of the war: the United Nations versus the Axis, the Russians versus the Germans, the Americans versus the Japanese. The course of the war is this way or that, either we are winning or we are losing. The end of the war will be victory or defeat—unconditional surrender. When such simplified thinking is projected into the making of the peace, it applies to international affairs the stock story pattern—hero destroys villain and secures heroine for himself. The United Nations, having defeated the Japanese and Germans, then render them incapable of starting another war, so that the good people of the world can live forever in peace and contentment.

The proposal that, with victory, we reduce our enemies to impotence may seem highly realistic. But it only reduces an incredibly complex global struggle to melodramatic form and provides the happy Hollywood ending that men so urgently desire. As a method of preventing future wars, it overlooks one vital difference between fiction and fact. In fiction, the villain dies and the story ends. In life, the story never comes to an end. People and nations must live on and on.

And if the good nations are to live on and on in peace, the villains must stay dead, and, equally important, no other villains must appear.

The Treaty of Versailles was a decidedly melodramatic ending to World War I. It was a treaty of vengeance. It put the defeated Germans in bondage; it robbed Germany of her external possessions; it melted down her vast armaments industry; and it reduced her military power to a token policing force. The treaty was designed for the specific purpose of rendering Germany militarily impotent and thereby preventing another world war. Nevertheless, in twenty years Germany had so successfully violated all the terms of the treaty that she possessed the largest, most highly trained, and most completely equipped army in the world. Indeed, the failure of the treaty was so soon apparent that within a few years the French set to work upon their archaic Maginot Line to protect them from an army which on paper did not and could not exist.

Never has a program for the maintenance of the peace failed so miserably. The blame for the failure is often laid on us, the people of the United States, and attributed to our unwillingness to give support to the League of Nations. But the League was never intended or expected to preserve the peace. The British and French leaders, thick-skinned, hard-headed international "realists," had placed their reliance on the military sterilization of Germany. It was the Treaty of Versailles, not the League, that failed.

Military sterilization is but a modern version of the ancient practice of exacting retributive justice from the vanquished. Historically, the punishment of a defeated enemy has succeeded in preventing further need for punishment only to the extent that the defeated enemy was destroyed. And anything less than complete destruction, down to the last resource, material and human, has always meant that the defeated rise in time—the more nearly complete the destruction, the longer the time—to annoy the victor. Obviously, when this present war is won we cannot destroy, in the literal sense, all the Germans and the Japanese and thereby eliminate Germany and Japan as threats to the new peace. But it is conceivable that we may try to do to them what the Treaty of Versailles tried and failed to do to the Germans—reduce them to a state of impotence. What would be necessary to avoid a repetition of the failure of the Treaty of Versailles?

The first requirement would be the actual destruction of the military brains of the two nations, for it is clear that the survivors of the

old German General Staff were the seed from which grew the great German military machine of World War II. They, not the Nazis, circumvented the British and French watchdogs during the 1920's, surreptitiously built up a great army, covertly guided German industry into munitions making, and preserved the military tradition. If the program were to have any chance of succeeding, all the German and Japanese military brains would have to be identified, apprehended, and executed. To do this would violate the consciences of our own military leaders; it would be a breach of promises already made; and it would, unless properly handled, arouse strong opposition from the civilian populations of most of the United Nations. But it is conceivable that we could undertake and carry out this, the greatest criminal hunt in history. Many problems would be encountered: to wit, the problem of legal definition. A general is a general, and off with his head. But how far down the ranks must one go before "responsibility" for the war and its conduct vanishes. Hitler and most of his party leaders are hardly professional military leaders, and it might well be that Hitler's defense council could truthfully claim that in the role of military leader Hitler had contributed more than any United Nations general to the defeat of Germany. But for safety's sake, it would be necessary to make the definition of international criminal exceedingly broad and to keep it flexible, including therein all those whose exceptional skills and mental abilities provided the leadership necessary to the making of war: the politicians, the industrialists, the technicians, and the scientists.

Meanwhile, to avoid a fundamental error of the Treaty of Versailles, it would be necessary to dismantle and remove the German and Japanese munitions-producing machinery. Not one tool for the fabrication of armaments could be left to them, not one tool for the manufacture of the tools to produce arms. In practice this would mean the deindustrialization of these two countries. For if they are capable of making plows, they can also make guns; if they can still make tractors, they can also make tanks; if they can fabricate transport planes, they can soon be making bombers. Anything short of reduction to a pre-industrial status would be folly. Leave a vestige of Krupp's, and you leave the seed that can be carefully nurtured into a flourishing munitions industry. But note: if the Germans and the Japanese are to be returned to the age of the oxcart, they must also be quarantined politically, economically, and educationally. Their lands might present us with curious places in which to vacation, but we must not trade with

them, we must not settle among them, we must not teach them. Otherwise, we should be inaugurating the same complex processes that once before made Germany and Japan great industrial nations. Of course, if we were to reduce them to this state and keep them there, their populations would be rapidly reduced. Neither could possibly support its present population on the basis of preindustrial techniques. But no matter. War has no regard for human life, and neither should the program to prevent war.

To accomplish these objectives, responsibility and vast resources would have to be invested in some one agency, an agency in the nature of a military high command. At its top there would have to be one man of great intelligence, unlimited energy, complete integrity, and a total disregard for the usual peacetime values. He and his staff would have to be left entirely free from political pressures. They would in effect have to be a quasi-military dictatorship with the power of life and death over some one hundred and fifty millions of people. For they would have to effect in a few years changes greater in degree and wider in scope, and in the reverse direction, than those that were accomplished under the Stalin regime after its rise to power in Russia.

All this may sound a little fanciful, this turning of the cultural clock back for the Germans and the Japanese. But it is all a first requirement for the successful fulfillment of the "realistic" preservation of the peace by exacting retribution of the vanquished. Suppose, therefore, that all this were accomplished, that in the ten years after the termination of the war all the Germans and the Japanese who had displayed qualities of leadership in the war were exterminated and the surviving populations were reduced to a preindustrial level and each isolated from the rest of the world. Would there be any assurance that Germany and Japan would stay demilitarized? None whatever. Unlike biological sterilization, social sterilization is temporary. It is perhaps possible to kill off all the generals and even all the corporals. But it is not possible to wipe out the military tradition which in life these men represented. That tradition will in time reassert itself through a rising generation of would-be generals and corporals. It is possible to destroy the military manuals and monographs; but there will still be legends, not so accurate as the written records, yet possibly more useful to a new generation of military-minded leaders. Motivated by the military tradition and nourished on the legends, the new generation might devise an entirely fresh concept of military tactics; and nothing is more

dangerous than an army led by men who do not know the ancient rules of warfare.

Meanwhile, the industrial tradition would tend to reassert itself. The new generation of would-be industrialists would face a more imposing problem than that faced by the military. Technology is based upon science, and an effectively sterilized Germany or Japan would have no science—no technical books, no laboratories, no opportunity to borrow scientific knowledge from the outside world. But unless every German and Japanese scientist, every student of science, every technician with an understanding of the scientific principles underlying his techniques, and every craftsman with knowledge of the laws upon which his crafts are founded has been killed, there would remain the basis for the rapid reconstruction of the physical sciences, thence of industrial technology, and so of industry. And in the process of that reconstruction, new discoveries might be made which would put the Germans or the Japanese a good jump ahead of the rest of the world.

All this means that, having achieved the original objective of complete demilitarization and deindustrialization of the enemy, we would then have to maintain an effective and constant policing of him. The task of the conqueror is never done, for conquest is a process, not a state of affairs. And the program of military sterilization is nowise less ambitious than the more conventional forms of conquest. That we would be motivated by considerations for the general welfare of humanity, rather than military or economic self-aggrandizement, would in no way lessen the difficulties of keeping the conquered German and Japanese peoples in the position to which they had been reduced. All the drives of their cultures, all their traditional values, and all their individual ambitions and interests would be opposed to the status forced upon them. They would, therefore, struggle and scheme to re-establish themselves as industrial peoples, to regain the so-called power of self-determination, to become equals again, and thereafter perhaps superiors, in the family of modern nations. To keep them demilitarized and deindustrialized would require constant and minute vigilance, prompt and ruthless punishment of the slightest infraction of the rules laid down for them, and a huge and trustworthy organization of informers, inspectors, judges, and executioners.

We would, therefore, be in the position of any conqueror or autocratic repressor: of the Germans over the peoples of occupied France, Belgium, Holland, Norway, and so forth, and of the Japanese over the

peoples of the Dutch East Indies, Burma, the Philippines, and the occupied portions of China. And even in the short run the role of the repressor of a people's basic cultural drives is hardly enviable. Given a highly improbable continuing unity among the victorious United Nations and full support for the program of repression, it is conceivable that the Germans and the Japanese could be kept demilitarized and deindustrialized for a decade or so after they had been reduced to these states. But in time, and all too short a time, our policy of sterilization would atrophy. In time we would, as has so often happened with the conqueror, grow weary of the cost of maintaining our control, grow lax with too much peace, and become lenient. In time our attention would become diverted by other and more immediate concerns and we would tend to forget the fearful threat to our welfare that led us to set up this control in the first place. And our administrators would meanwhile grow soft and ineffectual, becoming so comfortably embedded in the red tape of bureaucratic organization that they could no longer recall the purpose for which they had been hired. Meanwhile, too, sentimentalists would make their appearance among us to urge a more liberal and less restrictive policy toward our former but now impotent enemies. Little by little we would, then, relax our control, in part by inadvertence, in part through a change of heart. And little by little the Germans and the Japanese would regain what we had taken from them, and with each step grow stronger and more adventurous. In due time one or the other or both might again set out on world conquest.

In no field of endeavor has the practice of retributive justice been wholly satisfactory, and all too often it has actually provoked that which it was supposed to prevent. The blood feuds of the Scottish and other clannish peoples were perpetuated rather than terminated by insistence on retributive justice. In principle, if an enemy, individual or collective, is made to pay in kind (an eye for an eye, a tooth for a tooth) for injury he has caused, he will be discouraged from repeating his evil act. But in practice retributive justice has had little, if any, deterrent effects. Most early criminal law was founded on the principle, the state exacting a bloody price from those convicted of violating the law. Centuries of experience have demonstrated that retributive punishment does not deter the habitual criminal from repeating his crime. And today enlightened societies punish the criminal only to demonstrate to the person not yet habituated to the criminal life that

crime does not pay, if one gets caught. Permanent incarceration or death is necessary to cure the habitual criminal of his criminal ways.

Germany and Japan have now proved themselves to be habitual international criminals; it is part of their culture to seek in war the solution to their problems. Unlike the individual criminal, these criminal nations cannot be permanently incarcerated or put to death. And no punishment that we might inflict on them as retribution for the war they forced on us will convince them that war does not pay. Whether we call that punishment retributive justice, military sterilization, or simply vengeance, the results will be the same. As with the professional criminal, there is always the possibility that next time crime will pay—that next time they will win the war. Such, it should be recalled, was the argument the Germans used as they prepared themselves to launch World War II. Had they learned from the bitter costs of their defeat in World War I? No more will they, or the Japanese, learn from defeat in World War II. To make this defeat more costly for them might intensify their determination to fight harder and more skillfully next time. It will hardly discourage them from fighting.

The principle of retributive justice will be embodied in some form or other and to some degree or other in the peace settlements, for it is a principle which has strong dramatic appeal to layman and leader alike and one which is sanctioned by long usage. There will be much talk and possibly some action about punishing those leaders, political and military, who were "responsible" for the war. Indemnities of one sort or another will be levied against the defeated Germans and Japanese, who will no doubt be required to liquidate most if not all of their military establishments. The whole may add up to a half-hearted attempt at military sterilization or to a concerted and systematic attempt to prevent another war by reducing the Germans and the Japanese to military impotence. Any such program is certainly better than no program at all, since it may delay the coming of another world-wide war. But it cannot *prevent* the coming of that war. The Germans and Japanese will in time make their comeback no matter how ruthlessly the principle of retributive justice is applied to them; and one or the other or both may then disturb the peace, just as the criminal who has served his term usually goes out to steal or rape or murder another time.

Moreover, in the meantime some other people may develop ambitions too large for their national boundaries and set out to conquer

the world. A future Germany and a future Japan are not the only threats to the future peace, and even if they could be removed as threats, peace would not be assured. It would be as reasonable to assume that, if the man who committed the most recent murder has been caught and hanged, the problem of murder has been finally solved. Even the complete extermination of the Germans and the Japanese would not bring an end to war. There were wars without Germans and Japanese, and there can again be wars which they do not inaugurate. If it is to be effective, any program for the prolongation of the future peace must therefore deter not only our present enemies from remaining such, but also our present friends from becoming our enemies in the future. In the formulation of such a program, there is much that can be drawn from our long experience with individual crime control, for the parallel between the individual criminal and the international criminal is highly suggestive. Experience has demonstrated the futility of retributive justice as a preventative of individual crime and of international crime. It has also demonstrated that individual crime can be deterred, although not prevented, by strict, just, and coercive enforcement of socially sanctioned laws.

RURAL REACTIONS TO WAR MEASURES

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Rural reactions to war measures are, on the whole, positive and cooperative. Farmers and small townsmen want to win the war as quickly as possible, provided that the end comes with complete victory. They are sharply and outspokenly impatient with temporizing measures. They are suspicious of power politics. On the other hand, they are patient with the time requirements of major undertakings and will wait months for the news that cannot always be released. They are proud of the nation's civilian and military leaders and are confident that big and significant moves are in the making. But, it must also be noted, their reactions to specific measures are worthy of study and the trend of their reactions significant—significant sometimes in the extreme.

By and large, the Arizona farmer is setting up a high record of production, is paying his debts, and is looking toward a future that seems to hold more bright spots than dark. Wartime handicaps—such as labor scarcity and restrictions on machinery, rubber, and gasoline—are accepted as a matter of course, but when these are in any way eased up the farmer is grateful and immediately responsive. He is meeting the labor shortages by working longer days and doing more on Sundays than he has in many a year. He is piecing out the use of his machinery to get all he can out of it. He uses the pick-up truck more than the passenger car in order to make his rubber do double duty.

It should be said that with long hours of work the farmer looks upon numerous and lengthy official questionnaires with even less patience than in former days, the measure of patience in times of peace having been small at the best. It is not only the time involved in filling these out but the obvious bureaucratic technique that irks the farmer. As much may be said for the small businessman, although both farmer and local merchant will spend hours helping a government investigator whose quest they understand and consider essential to the war effort. Rural people are not deceived by the specious argument that a vast and powerful government must inevitably employ millions of clerks and regimenters. In plain terms, these men know the difference between the principle of division of labor as an aid to productivity as applied to government and the endless checking, tugging, and hauling of super-

imposed bureau heads keeping watch over their crews of subordinates both by day and by night.

When it comes to the use of manpower and the demands of the war effort, farmers have demonstrated more by deeds than by talk that they can do more than ever with fewer men, and without time and a half on the barrel head. Remote areas were early stripped of young and vigorous men who went with the National Guard, volunteered for the armed forces, or entered war industries away from home. Steadily there were drawn off the most vigorous and the young, and old men and boys filled in. Deferments have operated more to tip the balance in favor of the farm when cases were doubtful than to halt the mobilization of the best. This is as it should be. Men who can deliver practically 100 per cent output in food production may be anything but 20-20 as men in arms. The greater numbers of our youth who are fittest in physique and ability are needed in the armed forces and should be there. Rural people know that this must be if Zeros are to be downed in the Pacific and panzer divisions split and scattered on the fields of Europe.

Farmers and small townsmen are of the opinion that, when everything is taken into consideration, the county War Boards have helped production by curtailing the demands of some and meeting to a very reasonable extent the requirements of all producers. In the face of real hardships due to lack of motor fuel, remote rural families have carried on without complaint, because they considered that they were helping in the war effort by so doing, and because they believed that the War Boards were doing their best to be fair to all.

Differences in reactions of farm and small-town dwellers to food rationing are not so great as one might be led to believe. Small-town families engage in subsistence activities—such as planting a garden, raising chickens, and keeping a cow—to an enormous extent, so that ration points go about as far with them as with farm families. Some difficulties arise, however, out of this necessary and desired extension of home subsistence. Small quantities of surplus cream, for example, not collected by the commercial creameries because of distance or for other reasons, are made into butter. This product cannot be traded to neighbors who likewise have subsistence surpluses, nor can it be hauled to town because of gas shortages. Even should it be got to town, it may fail of a market because local consumers lack the ration points to ab-

sorb it. Nevertheless, along with small difficulties such as these, rural families are giving more thought to the essentials of a well-balanced and adequate diet than they have ever done before, and the poor as well as the comfortable are eating well, although production for the nation is kept at a high level.

The farmer is decided in his reaction to subsidies. He thinks that if they must be used in order to keep prices down, they should be given to consumers, so that the burden of drawing from the public treasury is placed upon those who benefit directly. His position is that he does not want subsidies to keep him at farming but rather only as he earns them, as in the instance of certain soil conservation payments. He holds that prices to the farmer, feeder, and rancher should be permitted to rise to a level corresponding to production requirements. He also holds that subsidies are one more item added to the mounting public debt. He believes that food claims the smallest proportion of the worker's pay check in the nation's history, and that therefore labor has no argument against reasonably high farm prices. He protests also that the farmer, as well as the businessman and the laborer, is kept regimented by subsidies.

The reaction on subsidies is only an instance of a growing general reaction against centralization of control over the lives of the people. This reaction is in some respects rational and in others indiscriminating and all-embracing. Ill-advised restrictions have been endured as long as they have because it is war time. In time of war, men hesitate to break any of the rules of the game, not knowing the possible hidden necessity. Nevertheless, reaction against centralized controls is mounting in strength.

Spoon-feeding the public on war news has been exceedingly unpopular among rural people, although they have made little noise about it. Military secrecy is recognized as the acme of hard sense, but the withholding of bad news has come in for outspoken criticism. Generally also rural people show appreciation of the value of understatement in giving out the news of victories. In the matter of bad news, it is the implication that the plain people cannot stand up under adversity and defeat but must be protected by the authorities who dole out the news; that is what rural people resent. The tide of rural reaction moves in a demand to know the worst now and keep the best for the days of celebration of total victory.

Perhaps one of the most important rural reactions of these war times has to do with the income tax. The older income-tax measure was successful in that it reached the farm and townspeople of fairly comfortable income; it was collectable; and its payment by the taxpayer was more or less a matter of pride. This was true among farmers and rural business and professional men, who cooperated with the Bureau of Internal Revenue as they prospered and came to be classed in the higher-income brackets. They made their income-tax returns with a considerable degree of care. It was a tax that met the man who was moving upward. Now the tax is trying to reach down. The idea is to tax millions of farm operators, laborers, and small-town people who have never before paid an income tax and who have never made an income tax return. The tax is failing to reach the levels intended to be reached. The whole situation is made more difficult by the complexity and needless ambiguities of the forms for making the required returns. Reaching down to tap the war incomes of the little fellows with a set of forms that give lawyers pause! It seems evident that hundreds of farmers and other operators and thousands of rural laborers who should do so did not file income estimates when they were due and will not file income returns on March 15.

Difficulties among certain agricultural laborers when income-tax deductions were attempted illustrate another point. Some time ago hay-baling was ruled to be packaging, and deductions were applied to the wages of the baling crews. The reaction of the men was quite uniform. These laborers did not consider that they should be included among income-tax payers. Therefore, as soon as the weekly wage reached the level beyond which exemptions did not apply and the tax was to be deducted, they quit work on the baling crew. For the remainder of the week they engaged in other farm labor in which pay rolls were not subject to tax deductions. The next week they resumed baling until the amount earned came to the limit of exemptions. Then they quit baling again and did other farm work the remainder of the week. Other examples of the difficulties of extending the income tax downward might be given.

Another reaction having to do with income-tax collection must be recognized. It has come about in this way: Farmer A has kept farm records for some time past, but he has not formerly been included among those who make income-tax returns. He has found himself of late among those expected to pay an income tax. He made a return as

required and supplied estimates of income based on his farm records. He furnished enough detail to give the Bureau of Internal Revenue some figures to bite into. The Bureau came back at him about a minor error. His neighbor, Farmer B, does not keep farm records and, finding himself among those expected to pay an income-tax, made a return to the best of his ability but, obviously, without the use of supporting data from farm records. There is no come-back at Farmer B, clearly because he hasn't furnished enough detail to afford material for making a check of his return. The outcome is plain to be seen. Farmer A is becoming very cautious about keeping records that in any way are accessible to persons in public office, so that he has discontinued his farm-accounting project which had been carried on in cooperation with the College of Agriculture. He will continue to be honest, but his returns will carry little or no supporting data from farm-account books. There is thus some unmistakable evidence that farm-accounting among middle-group farmers is losing ground and that a tide of reaction is setting in against the whole idea of keeping records in cooperation with any government agency. The farm management department in the College of Agriculture feels the consequences of this reaction at once, although at all times records obtained from farmers have been individually protected, the results of the accounting being made public as "averages" or in some such abstract form.

Upper-bracket income-tax payers, accustomed to accounting as well as to paying this form of tax, appear to react in the opposite direction. They maintain that full accounting protects them and prevents come-back from the Bureau of Internal Revenue, besides facilitating the calculation of the tax. It must be said, however, that the farm accounts of these larger operators have not generally been kept in cooperation with the College of Agriculture, so that there has been no reaction affecting the work of the College. It is to be hoped that cooperative farm-record keeping will return in strength among the smaller farmers and be extended among the larger operators as well.

Some mention has been made earlier in this paper of a mounting tide of rural reaction against centralized control over the lives of the people. This deserves an additional word. The core of this reaction is directed against linear methods of control by which responsibilities for the interpretation and administration of governmental policies are centered in the Federal Government at the National Capital. It is di-

rected against the congestion and confusion that results from refusal to delegate authority and to administer policies with some regard for local conditions. There is little danger that this reaction will become unreasonable and sweep away the gains made along all lines of Federal control. Some—such as Federal supervision of common carriers, and Federal support and coordination of agricultural research—have long been defended by rural opinion. There is, however, a demand for a stricter adherence to the rules of the game in government and less dependence upon government by persons, which in practice often means government by hunch or intuition. Surely the world is getting enough of that.

ASSIMILATION OF WAR-TIME MIGRANTS INTO COMMUNITY LIFE¹

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It is a matter of common knowledge that nearly all war-industry centers on the Pacific Coast have experienced marked increases in population during the defense-war period. Numerous journalistic accounts have described vividly some of the problems—such as those of health, housing, sanitation, transportation, crime and delinquency—that have arisen in the wake of a migration that has brought hundreds, or even thousands, of new residents into such communities. At times another problem, that of the assimilation of the newcomers into the life of the community, also is mentioned as being of some importance. This problem is of particular interest to sociologists.

In most war-industry centers where this problem of the assimilation of the newcomers into community life is reported to be serious, the newly migrated population allegedly is not welcomed by the rank and file of established residents. Judging from popular accounts, the new residents are stereotyped as socially inferior, uncouth, and unfitting associates for the longer-established residents of the community. It would appear that the newcomers are assigned the status of a minority group, comparable to the status sometimes assigned the foreign-born or the "reliefers" of a past decade. Such stereotypes and social discriminations are aroused, it is clear, by the forces of fear, competition and invasion that grow out of any rapid major in-movement of population.

Data reported in this paper for one Washington county affected by a war-time influx of new residents suggest that in this area, at least, the assimilation of the war-time migrants into the life of the community should represent no major problem. The data suggest that the newcomers already have begun to accept as their own certain prevailing goals and aspirations of the longer-established residents. Thus the conclusion appears warranted that in this area the newcomers already are well along the road toward complete assimilation into the life of the community.

¹ Published as Scientific Paper No. 603, College of Agriculture and Agricultural Experiment Stations, State College of Washington, Pullman.

Quite possibly this area, Snohomish County, Washington,^a is not typical of all West Coast war-industry centers. It lies on Puget Sound, just north of the Seattle-Tacoma-Bremerton triangle of war-industry activity. During the period of defense preparation, considerable construction activity was carried on in and adjacent to the county. Currently the chief industry of the county is the newly established ship-building industry, although the milling and manufacturing of lumber products, which formerly was the leading industrial activity, has been greatly stimulated by the war-time demand. Everett, a city of approximately 35,000 population situated about thirty miles north of Seattle, is the largest city in the county. Although thoroughly reliable estimates are not available, it is probable that the county population has increased by about 10,000 persons since the 1940 Census. Along with these more obvious similarities with other war-industry centers, there has been in some circles in Snohomish County an undercurrent feeling of resentment toward "newcomers who contributed nothing to the growth of the county and now are profiting from these good jobs that could have gone to the old-timers around here." Considering these circumstances, it is felt that the summary here reported should be of fairly wide interest.

The following analysis is based on a comparison of a "newcomer"^a group of 1,325 households in Snohomish County, Washington, with the remainder of the sample of approximately 8,500 households. The comparison was made in order to learn what differences, if any, existed between the recent migrants and the longer-resident population. The characteristic picture that appeared was one of marked differences in background experience, but of striking similarities in future prospects.

In their residential backgrounds, for example, the newcomers had largely a town and city heritage, whereas the established group had mainly an open-country heritage. In 1941, 71.5 per cent of the new-

^a This paper reports one phase of a "Survey of the Human Resources of Snohomish County," which was carried on cooperatively by the Division of Rural Sociology in the Agricultural Experiment Stations of the State College of Washington, and the Washington State Planning Council, with financial assistance from the Snohomish County Public Utility District, No. 1. In May, 1943, over 1,000 high school students in the county distributed a four-page questionnaire to virtually all households of the county outside the city of Everett. A sampling procedure was used in Everett. Over 8,500 usable returns, representing a like number of households, were received.

^a The newcomers were defined as those households in which the head of the household lived elsewhere than in Snohomish County in May 1941, but was a resident of the county in May 1943. Thus presumably he moved into the county during that two-year period.

comers had resided in towns or cities, whereas 62.0 per cent of the established residents had lived on a farm or elsewhere in the open country (Table 1). At the time that the survey was made in May 1943, the proportion of town and city residents in the two groups was identical,

Table 1. Comparison of Newcomers and Established Residents on Town-Country Residence for Selected Periods

Period	Per cent of households, newcomers and established residents, living:					
	In town or city		In country non farm		On farm	
	Newcomers	Established residents	Newcomers	Established residents	Newcomers	Established residents
1933	66.1	45.7	10.1	19.9	23.8	34.4
1941	71.5	38.0	13.2	29.1	15.3	32.9
1943	36.3	36.2	41.0	30.0	22.7	33.8
Expected post-war	35.9	35.4	27.0	27.4	37.1	37.2

although the established-resident group contained a higher proportion of farm residents and a lower proportion of open-country non-farm residents than did the newcomers. No doubt this trend toward similarity arises in part from the relative availability of housing opportunities in the county, but this factor scarcely can be considered the sole explanation for the remarkable similarity in preferences expressed for the area of post-war residence. As shown in Table 1, the percentages of the newcomers expressing preference for a town or city, a farm, or an open country non-farm residence were virtually identical with those of the established population. This fact seems to offer abundant evidence that the newcomers had accepted as their own one set of goals of the established residents.

The striking similarity appears the more significant when it is realized that 41.0 per cent of the newcomers had lived outside the State of Washington in 1941 and 46.7 per cent in 1933. Indeed, one-fourth of the newcomer group was living in the Mountain or West Central states as recently as 1941, and one-third was residing in this area between the Rocky Mountains and the Mississippi River in 1933. Slightly over one-third of the newcomers, however, moved into Snohomish County from neighboring counties.

Even though such large proportions of the newcomers hailed from other states, three-fourths of those answering the question indicated that they expected to continue living in Snohomish County after the war, and an additional thirteen per cent expected to live in some other county of the state. One-fifth of those questioned gave no answer on

their probable state or county of post-war residence. Thus, at the very minimum, 60 per cent of the newcomers expected to continue residing in the county to which they moved in response to war-stimulated employment opportunities.

In their occupational backgrounds the newcomers differed greatly from the established residents, the differences reflecting both the predominantly urban background of the newcomers and the available employment opportunities. Considerably smaller proportions of the newcomers than of the established residents, for example, had been engaged either as farmers, as loggers, or in manufacturing or mechanical trades in 1938 or in 1941. (See Table 2.) The latter two classifica-

Table 2. Comparison of Newcomers and Established Residents on Major Lines of Industrial Employment of Male Household Head for Selected Years

Major line of industrial employment followed	Per cent of household heads, newcomers and established residents					
	May, 1943		May, 1941		May, 1938	
	New-comers	Estab. residents	New-comers	Estab. residents	New-comers	Estab. residents
Farming	12.8	20.5	13.9	21.6	16.8	22.7
Logging	3.0	5.6	3.7	7.0	4.2	6.7
Mfg and mechanical	12.2	16.8	14.6	22.7	12.8	20.3
Transp. & communication	5.7	5.2	8.8	6.0	9.8	6.2
White collar	10.4	10.9	18.9	14.2	18.0	14.3
Construction	13.0	9.6	20.0	12.6	20.4	12.4
Ship building	33.8	15.7	5.6	1.7	1.1	0.4
Military service	4.7	1.3	2.4	0.5	1.3	0.3
All others	10.0	12.2	12.6	11.4	15.2	13.1
Unemployed	2.9	2.2	3.1	2.2	5.4	3.5

tions especially reflect the peculiar employment opportunities open in the established industries of the county. On the other hand, proportionately more of the newcomers than of the established residents had occupational experience in such broad lines of employment as transportation and communication activities, white-collar pursuits, and construction and laboring jobs. At the time that the survey was made, one-third of the newcomers were employed in shipyards, a proportion which was twice as great as that of the established residents. Marked reductions occurred between 1941 and 1943, moreover, in the proportions of newcomers engaged in white-collar, construction, and transportation and communication activities as a result of the movement into shipyard employment. This fact in itself suggests some of the occupational

shifts which occurred as a result of the movement into war industries.

As was found for residence, important differences in occupational backgrounds between the newcomers and the established residents gave way to marked similarities in expressions of preference for major lines of work to be followed during the post-war period. Even though proportionately only about two-thirds as many of the newcomers as of the established residents had been engaged in farming during the three years 1938, 1941, and 1943, an almost identical proportion of them indicated a preference for farming during the post-war period. This fact also may be regarded as evidence of the acceptance by the newcomers of the attitudes of the residents toward the desirability of farming. Moreover, as is shown in Table 3, there were close similarities in

Table 3. Comparison of Newcomers and Established Residents on Major Lines of Work Preferred for Post-War Period

Major line of work preferred	Per cent of household heads	
	Newcomers	Established residents
Farming	30.6	30.7
Factory and mill jobs	27.8	27.4
Business career	13.8	14.5
Transportation and communication	8.3	7.9
Professional	8.7	5.6
Logging	2.7	5.0
Miscellaneous	7.4	7.1
Unable to work	5.3	11.8

the proportions of the two groups expressing a preference for factory and mill jobs, for business careers, and for employment in transportation and communication lines. In part, of course, these similarities result from the types of employment opportunities open in the county, but almost certainly other factors enter into the explanation for the remarkable similarities.

Fewer than one-half as many, proportionately, of the newcomers as of the established residents indicated that they probably would be unable to work during the post-war period. This fact reflects the younger-age composition of the newcomer group compared with the established residents, and also suggests the favorable effect that the migration has had upon the quality of manpower for the labor market, during both the war and the post-war periods.

A few data on home ownership and the prospects of post-war construction activities likewise give evidence of the progress of the new-

comers along the road toward assimilation into the life of the community. As might have been expected from their predominantly urban background, a majority (57.2 per cent) of the newcomers had been renting their homes in May, 1938, whereas among the established residents the corresponding figure was 30.6 per cent. At the time of the survey the difference was even more marked, since only 19.3 per cent of the established residents but 50.8 per cent of the newcomers enumerated in the survey were renting the houses in which they lived. Nevertheless, there was in the two groups a fairly equal proportion of households that were purchasing their own homes, 32.4 per cent of the newcomers and 30.5 per cent of the established residents being in the process of acquiring home ownership. Thus it seems clear that the newcomers already are working toward the home-ownership goals of the established residents.

Further evidence on this point is found in the expressed ideas of the household heads toward the likelihood of their undertaking home construction or remodeling activities during the post-war period. Among the newcomers 54.2 per cent and among the established residents 54.9 per cent indicated probable post-war construction activity. Here again the similarity in the two groups, despite considerable background differences, is striking. As might be expected, of course, proportionately twice as many of the newcomers as of the established residents expected to undertake the construction of new homes. The established residents naturally expected more often than the newcomers to remodel existing homes and buildings.

The foregoing analysis reveals strikingly that the newcomer families who came to Snohomish County during the defense-war period, despite great differences in certain background characteristics, already are scarcely distinguishable from the established residents in their aspirations for the post-war period. This fact appears to support the conclusion that they are well along the road to complete assimilation into the life of the community. Quite possibly a similar situation prevails in other West Coast communities which have experienced a sudden influx of new residents and where the established residents have felt that the newcomers were a strange, different type of person. If the evidence on the basic similarities (such as those shown in this analysis) rather than the superficial differences commonly pictured were stressed, then there might well be no serious problem of assimilating war-industry migrants into the life of most West Coast communities.

PRISONIZATION AND THE WRA CAMPS

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In analyzing the effects of relocation on Japanese-Americans, I have found it useful to apply Clemmer's concept of prisonization to yet another context. In this paper I should like to sketch out the problem in terms of a comparison and contrast of prison and "camp" life. Even at risk of belaboring the obvious, I wish to make it clear at the outset that no responsible official has referred to the camp residents as incarcerated criminals. The point taken here is that prisonization is a societal phenomenon, not a legalistic one, and the concept is applicable to situations where criminality is not a factor and indeed where legal considerations are in doubt.

Clemmer defines prisonization as the taking on of the culture of the penitentiary, which is facilitated by such factors as the length of sentence, plasticity and instability of personality, and lack of extra-prison contacts.¹ Prison life deviating in important respects from the general culture, may have apprenticeship value for outside life only when behavior patterns are specifically appropriate to law-abiding or criminal existence. Although I am not quite certain that Clemmer would approve my interpretation, it seems not too great a violence to restrict the term prisonization to the deviant features. Otherwise, it must be made to include the totality of the socialization process as it goes on in prison and the term becomes logically useless.

The War Relocation Authority centers and their predecessors, the Wartime Civil Control Authority camps, are an ambiguous phenomenon as well as an anomalous event in the American scene. Throughout their history their administrations struggled without much success to evade the stigmatizing labels "prison" and "concentration camp." The words were employed indiscriminately both by persons who were interested in protecting the evacuees and were indignant at their treatment and by those who wished to call them bad names. This is one of the instances in which words of themselves are important, and the popular definition, although confused, has been markedly influenced by the terms. The facts are not generally known.

¹Donald E. Clemmer, *The Prison Community* (Boston: Christopher Publishing House, 1940), pp. 298-304 *et passim*.

Perhaps it is easiest to define the status of the camp residents by indicating where they fall in a wartime hierarchy of restricted populations. First are the prisoners of war seized in combat. Second are civilian internees, aliens of enemy nationality, who were apprehended by the F.B.I. and have been found guilty of acts against the national security or have been found dangerous to the national security by enemy-control hearing boards, or who await hearing. They are confined in internment camps administered by the Justice Department, not by the WRA. Third are the segregated group of Japanese aliens and Japanese-Americans who have signified loyalty to Japan or have expressed the wish to be deported to Japan in order to accompany relatives or for other reasons. This third group has been sequestered at the Tule Lake Relocation Center since the fall of 1943 and is presumed to include all disloyal elements from the other centers. They are, of course, not eligible for leave. Unfortunately, the Tule Lake Center is administered by the WRA, and the other centers are identified with it in the public press and mind. Fourth are the residents of the relocation centers, both alien and citizen. Fifth are former residents of the centers who, after "being cleared," have been released on indefinite leave, or for a prescribed period.²

The above set of facts lends itself to confusion and exploitation by those whose purpose is to identify the evacuees with the enemy. Another contribution to the cause of ambiguity was the Selective Service policy of classifying *nisei* as 4C, the designation for enemy aliens, a practice being changed only at this writing. These societal definitions found their reciprocals in the self-definitions of the evacuees and thus fostered prisonization.

The symbolic devices were reinforced by physical ones. Armed soldiers patrolled the camp boundaries, barbed wire fences were erected, and search lights illuminated the fence areas. The size of the camps was determined by the efficient use of military personnel, the theory being that a minimum guard unit could control a large camp as well as a small one.³ In turn, the size of the camps imposed a rigidity of organization and a degree of regimental control that would not have been necessary under more variable conditions. Military police are

²"Leave Regulations," *Second Quarterly Report*, War Relocation Authority (July 1-September 30, 1942), pp. 13-17.

³"Selecting the Relocation Sites," *First Quarterly Report*, War Relocation Authority (March 18-June 30, 1942), p. 7.

stationed outside the centers to control entry and exit. They enter the camps only under emergencies, such as the Manzanar "incident" of December 1942.

An important prisonizing influence is the pattern of doubt, rumor, and psychological insecurity which is probably inescapable. The WRA policy was literally extemporized, and especially in the early history of the organization it was in a state of flux. The most important single question is "How long shall we be here?" It is a question most convicts can answer with better assurance. Even now the evacuees are wondering if the camps will be maintained after the war, and a very few hope that they may be kept in operation for a brief period during which public opinion might become more temperate.

Because the evacuation was conducted on racial (that is, on caste) lines, the isolation of the population was more deeply felt than if only aliens had been removed. The camps themselves are crystallizations of caste structure with all "orientals" subordinate to all "Caucasians." Some members of the staff, of course, strive to ameliorate this situation, and in the early stages of camp growth the Caucasian staff shared the discomforts of the crude living conditions. Other staff members found ego-gratification in the status pattern.

Only passing reference can be made here to the breakdown of the instruments of folk control.⁴ The internment of many of the *issei* and the thrusting of responsibility for camp organization on inexperienced youth resulted in a damaging of previous forms of integration. Although family structure was badly strained, even its imperfect continuation was a buffer against prisonizing tendencies. It afforded a reminder of outside existence and some practice in normal activities. On the other hand, it now has a mixed influence and is responsible for over-caution when individuals consider going on leave.

The community activities are clearly non-prisonizing features. From the start, education was recognized to be essential, and the programs are usually adequate and sometimes excellent. The variety of offerings would do credit to much larger school systems. Allied with supervised recreation, the education plan has gone about as far as pos-

⁴These questions are touched upon in my two earlier articles: "Familial Problems and the Japanese Removal," *Proceedings of the Pacific Sociological Society* (1942), in *Research Studies of the State College of Washington*, XI (1943), 21-26; "Familial Adjustment of Japanese-Americans to Relocation: First Phase," *American Sociological Review*, VIII (October, 1943), 551-60.

sible toward reducing the speed of prisonization among the young. But this is only relative, for after two years some youthful Japanese-Americans know nothing but camp life or remember very little else. Religious activity performs somewhat the same kind of function as the educational and recreational programs. In addition, it has been favorably received because the evacuees realize that, of organized bodies, the churches have given the most sympathetic support. Some religious behavior, however, is largely escapist, as is evidenced by the appearance of cultist groups.

The letter and the press are extraordinarily important features of life in the Centers. The correspondence which was exchanged between evacuees and their friends outside composes one of the great instances of mass logorhea in history. I would guess that it has now tapered off, and if so, we have a ready-made index of prisonization. Another tie with the outside is the metropolitan press of the Pacific Coast. With almost pathological curiosity the camp residents read the attacks upon them by, for example, the Hearst press. The evacuees, like other persons, are not above dramatizing themselves, and there is ample material in these sources. But the effect is more than a simple frivolous one, for each man is his own public opinion analyst and, lacking more objective information, he measures public sentiment by the size of newspaper headlines. In addition, each camp has its paper. It features news of its own relocation center and relocation problems. The *Heart Mountain Sentinel*, for instance, has a vigorous editorial policy to encourage applications for leave and shows a willingness to "fight back" at antagonistic newspapers. This policy has the effect of canalizing aggressions in such a way that individuals may find it easier to identify themselves with the main currents of life outside. It accomplishes this end best among the most overtly patriotic young *nisei*.

The complex of prisonizing and non-prisonizing influences is brought to the test level as the individuals face the prospect of leaving camp. The most clear-cut instance was the formation of a combat team of volunteers. Even though they were not eligible to be inducted under Selective Service at that time, they enlisted in considerable numbers, and their enlistment rate compares quite favorably with that of the general population. Their action was not uniformly approved, for instance, some persons thought that they were once more being treated as a special kind of American, one hundred and ten per cent Americans

who could not be drafted but must enlist. For the most part, however, the volunteers were seized upon as a device to identify the Japanese-American community with the war effort. The salutary influence was somewhat reduced by prolongation of the interval between volunteering and actual induction.

The cumulative effects of prisonization inhibit decision-making, and many obstacles have to be hurdled.⁵ There are the procedures of securing clearance, a tedious task at best. There are considerations of financial risk with the knowledge that the employment offered is not likely to be either attractive or remunerative. Because most of the individuals going out leave families in the camps, there are problems to be threshed out in family council, and the ~~uses~~ to be convinced or defied. Even at best, there are the small bereavements of departure. Those who go out on seasonal leave have the tensions cushioned by the groups in which they work. At least one observer mistrusts the holiday spirit of the seasonal work gangs.⁶

But for the solitary individual, after a year or two or more behind barbed wire, the "outside" is at once attractive and frightening. Unlike the convict, the Japanese-American is "visible," and his fears are often physical fears. The emphasis on the role of the camps as protection against a hostile people reinforces their reluctance to leave. It is impossible to estimate the amount of trained incompetence, but it is very probably one of the most important products of camp life and clearly the psychological correlative of prisonization. Most important of all is the task of breaking the camp habit systems and adjusting to an environment half new and half forgotten. An observation of a repatriate on the Gripsholm states the problem simply: "everybody was feeling the way I was about reaching New York, too. Instead of being impatient and eager to get there, I was afraid. I was appalled at the prospect of diving into life again. I saw freedom ahead of me, days full of my own decisions, a continent to wander in without exit or entry permits and without permits to take my baggage, permits to own my baby. I was scared to death."⁷

Summarily, although the camps have not yet elaborated a sub-

⁵ See articles by John Kitasako in the *Heart Mountain Sentinel*, December 31, 1943, and January 15, 1944.

⁶ John Kitasako in the *Heart Mountain Sentinel*, January 22, 1944.

⁷ Emily Hahn, "Homeward," *The New Yorker*, XIX (December 25, 1943), p. 28.

culture analogous to that of the prison, they present a number of prisonizing features, such as the obscurity of the societal definition of the residents, their identification with the enemy through devices of caste, the indeterminate prospect, the physical restrictions and conditions of the environment, and the breakdown of control features of the folk culture. Influences counter-acting the above forces are organized education, recreation, the camp press and other community activities, military participation by their group, and ties with friends outside. The conflict of these influences becomes crucial when persons consider leaving camp and the family can play both prisonizing and non-prisonizing roles.

Ultimately the success of the administrators, agencies, and staffs will be measured in terms of the extent to which the prisonization of evacuees has been minimized. There is evidence that many members of the staffs appreciate the essential aspects of the problem. Defined as the situation is, total success is unthinkable.

RELIGIOUS COOPERATION IN WARTIME

PHILIP M. SMITH

Whitman College

It is axiomatic that a war crisis accelerates the process of integration¹ among members of the in-group viewed as a nationalistic whole. Within the framework of varying institutional forms, social-tension factors must be reduced to a minimum because of the necessity for presenting a united front to the enemy.²

In this connection it is likewise apparent that emergency conditions are provocative of revision of institutional aims and procedures. Streamlining and short-cuts for the sake of efficiency are the order of the day. Through closer collaboration on the part of related agencies, moreover, organizational adjustment is more nearly synchronized with the rapid social changes so characteristic of wartime.

Of the institutions feeling the impact of war, none is more resistant to change than the church. Historically it has been a stabilizing force, designed to preserve those ethical and religious values which are believed to have stood the test of time. But the very nature of its position as the custodian of a body of doctrine inherited from the past causes it to be peculiarly marked by inertia. This is true in the field of social action especially. Except as they be forced upon it perhaps by the influence of secular movements, the church seems disinclined to adopt innovations which may be fully justified in the light of the changing social configuration.

Morally obligated to adjust certain phases of its program in conformity with the demands of war conditions, the church found itself handicapped at the outset by a troublesome species of cultural lag. Extramundane sanctions, problems of Biblical interpretation, and the American concept of religious liberty had facilitated the growth of sectarianism and made united effort, particularly among Protestants, difficult to achieve. Formulation of a coordinated socio-religious policy for the emergency seemed to many persons more idealistic than prac-

¹Elon H. Moore, "The Social Functions of War," *Proceedings of the Pacific Sociological Society* (1942), in *Research Studies of the State College of Washington*, XI (1943), 9.

²Conversely, war aggravates some forms of social disorganization. Racial antagonism stemming from increased spatial and occupational mobility among Negroes, for example, has been a cause for much concern. Current discussions regarding the prevalence of juvenile delinquency, moreover, imply the lack of a unified policy for dealing with one type of problem accentuated by war.

ticable. But there were progressive churchmen, representing widely different creeds, who felt that integration of religious forces on a functional basis at least was not only desirable but feasible, subject to obvious limitations.

Inasmuch as the value of religion in sustaining national morale is widely recognized, the present situation seems to raise some pertinent questions: (1) To what extent are there evidences of an increase in cooperation among adherents of different sects? (2) Are there signs that church people are becoming more tolerant in viewpoint under the stimulus of wartime conditioning factors? (3) More especially, what ecumenical tendencies have been observed among men in the Armed Forces and what is their socio-religious significance? It is the aim of this paper to offer a tentative answer to the foregoing, so far as limitations of space and of the data will permit.*

The term *cooperation* as used in this study refers to joint action toward a common goal under an agreement that may be either expressed or implied. Because emphasis is upon relationships of an operational nature, no question of the organic union of churches is involved. Evidences of interfaith understanding, however, are interpreted as having prognostic value in connection with the church of the future as a social institution.

I COOPERATION IN DEFENSE AREAS

It is a matter of common observation that internal migration on a record scale has created problems of serious proportions in many parts of our nation. With boom towns springing up almost overnight, housing shortages, already severe in some localities, became acute as the influx of war workers reached its peak. Nor was it unusual for a military establishment having a personnel numbered in the thousands to be set up adjacent to a small community, thereby overtaxing local facilities and tending to produce social dislocation. All in all, such sudden shifts of population as were induced by the war effort resulted in maladjustments that were difficult to remedy.

A factor of significance to the church was the disintegration of moral and spiritual life so often accompanying the movement of entire families to places where they were strangers. Faced with the need for

* In a study of this type it is admitted that any high degree of objectivity is virtually impossible to obtain. Dependence was placed upon expert consensus in evaluating the results of interviews conducted in the summer of 1943, supplemented by questionnaires and extensive correspondence.

providing religious ministrations for a host of newcomers, churches in defense areas seem to have favored a cooperative strategy in dealing with the problem. Especially is this true of Protestant bodies functioning through local federations of churches. Every effort is made to avoid duplication and overlapping. The Christian Commission for Camp and Defense Communities, created by the Federal Council of the Churches of Christ in conjunction with related agencies, is the coordinating organization for such activities on a national scale. By sending trained workers into areas of exceptional need, the churches cooperate to arrest spiritual decline.

One of the most timely enterprises is the ministry to families residing in defense housing areas. Usually the worker's family craves friendship and sympathy as well as spiritual consolation. A problem of morale to be considered has its inception in the fact that these people are of heterogeneous backgrounds, geographically and culturally. Furthermore, a feeling of isolation may exist, a consciousness of being different from the permanent residents of the community, tending to develop a psychology of suspicion and distrust. In helping to counteract such unwholesome attitudes, the church has made a real contribution to morale.

It is significant that establishment of churches on these projects is encouraged only under the sponsorship of a Council of Churches or similar body. Obviously the aim is to prevent friction engendered by interchurch rivalry. Through a comity agreement, provision is made for ministering to all persons in recognition of their respective denominational preferences. Inasmuch as representatives of the various groups cooperate according to schedule on the field, the atmosphere is decidedly non-sectarian.

An outstanding piece of work is being done at Vanport City,⁴ said to be the largest federal housing project in the nation. At the suggestion of the Federal Housing Authority, the Portland Council of Churches formed an organization under its United Church Ministry in which several Protestant bodies participated.⁵ Allocation of responsibility on a denominational basis appears to insure the continuity of the work, while providing capable leadership and financial support. Of in-

⁴ Oliver A. Johnson, *Vanport City, Oregon* (Senior thesis, Linfield College, 1943), pp. 59-65.

⁵ The Executive Secretary of the Portland Council of Churches reports that "never in its history was there such a spirit of unity and cooperation as has been evidenced in connection with this program for defense communities."

terest is the fact that the order of service used on Sunday mornings is intended to combine the worship practices of the various groups. The ministers preach in rotation, a different man being in the pulpit on each of the several Sundays in the cycle. On week-days, representatives of the United Church Ministry conduct other religious, educational, and social activities, which comprise an important part of the work.

From many sections of the country, wherever war conditions have called for readjustment of the conventional policies of the church, the record of cooperation is much the same.

II. COOPERATION IN THE ARMED FORCES

Distinctions based on denomination tend to become obliterated in religious work among men in the Armed Forces. Sectarianism as such receives no official encouragement in any branch of the Service. Although chaplains are selected through denominational channels, there would be serious administrative difficulties if each sect were to be permitted to carry out its own program. Besides, there is a shortage of ministerial personnel. Regardless of the church with which a Protestant chaplain may be identified, once in the Service he is expected to minister to all who may require his help, in accordance with a definite policy. Since the objective is not to win converts to any one church, the situation is conducive to cooperation on the part of both chaplains and enlisted personnel.

Experience has demonstrated that a chaplain's influence as a spiritual adviser is determined largely by personal characteristics that often prove a measure of the esteem with which he is regarded by the men. What seems important to individuals engaged in the ugly business of war is not their chaplain's ability to discuss the fine points of theology but whether he is willing to share hardships and dangers as one who is their faithful friend. That men facing death would be particular as to the denominational affiliation of their spiritual adviser is, of course, hardly conceivable. So long as he is able to inspire confidence on the basis of friendliness, sympathy, and personal integrity, his ministrations are beneficial to morale.

It is noteworthy that chaplains are trained to minister in emergencies to adherents of other faiths, whether they be Protestant, Catholic, or Jewish. The very nature of this training, together with the intimate contacts of life in the Service, creates sympathy toward persons of differing religious backgrounds. The Chief of Chaplains for the

Army is a Roman Catholic. The Chief of Chaplains for the Navy is a Presbyterian. On the war fronts, on the high seas, and in the camps at home interfaith cooperation is exemplified by the chaplains.

Out of the war has come many a narrative of devotion to duty under trying circumstances. Perhaps no finer illustration of the spirit of brotherhood, or of a harmonizing principle inherent in various faiths, can be found than the following:

"There is the epic story of the four Chaplains who gave their life belts to four enlisted men on a torpedoed Army transport. As the ship went down, they were last seen on the deck, kneeling together, holding each other's hands . . . and praying with a group of other men who went down with them. Of these Chaplains, one was a minister of the Reformed Church in America, one was a Methodist, one was a Jew, and one was a Roman Catholic."⁴

Many less spectacular incidents could be cited to show how war has compelled men to discard non-essentials in moments of danger and come to grips with the basic realities of religion. Those who may be undergoing the ordeal of battle have no inclination to argue over subtle points of doctrine. How their comrades fight and die, how they live behind the lines or in the training camp, throws much light upon their religious beliefs. Deeds rather than words are the criterion of faith for many soldiers. According to the testimony of close observers of the war scene, courage, unselfishness, and friendliness constitute a common denominator of spirituality among busy men forced to concentrate upon the unpleasant task before them.

Of numerous reports describing interfaith cooperation, the following was selected as being especially illuminating:

"The close collaboration which Army life necessitates dispels many of the prejudices that are born of ignorance. A Catholic gunner on a mission on the same plane with a Jewish bombardier can not continue to believe the rumors that a Jewish soldier seeks the soft jobs in the Army. Nor can he believe the rumors so widespread in the civilian community that the Jew seeks to dodge the draft when he sees the number of Jewish soldiers in his Company. The Protestant boy from the deep South does not think any longer that a Catholic soldier gets his orders from Rome when he faces the same fire with him in the fox holes. The prejudices that die so hard in civilian life vanish here because they meet their refutation at every step."⁵

⁴Quotation from a letter from the Rev. S. Arthur Devan, Director, General Commission on Army and Navy Chaplains. (Several sources vouch for the authenticity of this report with respect to the essential facts.)

⁵From a letter from Isaac Klein, Jewish Chaplain at Mitchell Field, New York. (Chaplain Klein denies, however, that, as a press release erroneously stated, a Protestant chaplain once used his sermon notes.)

III. FACTORS UNFAVORABLE TO FUTURE COOPERATION

Despite unmistakable evidences of religious cooperation during the present war, it is impossible to determine to what extent this trend will persist when the emergency is over. One reason for this is that large segments of the civilian population have refused to respond to the pleas of socially minded leaders for greater toleration of minority groups.

Deep-seated prejudices involving religious, racial, economic, and cultural differences are not easy to overcome. Nor does intellectual assent to the proposition that religious bigotry is the enemy of our democratic form of government necessarily signify compliance on an emotional and volitional basis. To anticipate a radical change of attitude on the part of those whose opinions have long revealed serious anti-social bias is to ignore the lessons of history.

Assuming that numerous returning Service men will regard religious bigotry with impatience at first, is there any assurance that some will not heed the plea of the demagogue and persecute a convenient scapegoat with the onset of a post-war depression? Predictions are hazardous, but, when one recalls the revival of the Ku Klux Klan after the last war, it would seem that smoldering hatreds are easily fanned into a flame. Already there are disturbing signs of a growing "anti" spirit. This was recently manifested by a wave of anti-Semitism in New York City, for example, and by repressive measures directed against Negroes in certain industrial cities of the North. In view of these unfavorable symptoms, one wisely hesitates to make an optimistic prophecy.⁸

From the standpoint of Protestant cooperation, there is always the danger that fanatical leaders may seek to capitalize upon the sectarian jealousies of pre-war years, eventually nullifying much of the war-time gains.

IV. SUMMARY AND CONCLUSIONS

A summary of the foregoing discussion, as well as mention of certain additional implications, may be helpful:

1 Among the larger Protestant bodies religious cooperation has been accelerated during the war. The need for specialized services in defense areas and near Army camps has made joint action essential to success. By virtue of notable ac-

⁸Dr H. Paul Douglass, who has studied conditions in many defense communities, sees little evidence of basic changes in underlying religious attitudes associated with increasing cooperation. He does observe, however, a growing awareness of the importance to the churches of certain social and economic issues.

accomplishments in the present emergency, the prestige of Protestant church federations has been enhanced

2. The intimate associations of adherents of different faiths in the Armed Forces appears to accentuate similarities of belief and to minimize the importance of divergent views. Cooperation between Protestant, Catholic, and Jewish chaplains inspires emulation on the part of enlisted men of varying religious backgrounds. Army and Navy authorities have encouraged the growth of inter-faith understanding, appreciating its contribution to morale.

3. A greater degree of religious toleration exists in the Services than among civilians. This may be explained in part in terms of the average age of enlisted personnel. Younger persons are known to be more open-minded in such matters than their elders, probably because there has been less time for prejudices to crystallize. But the socializing effects of camp life may well be the decisive factor in this connection.

4. There is a definite tendency for service men to evaluate religion on the basis of functional relationships rather than as creed and dogma. Not enough was known concerning the attitudes of Roman Catholics to warrant the conclusion that their views have been modified to any significant extent. But for Protestants and Jews the trend was evident. Present indications are that, upon returning to civilian life, they may insist that the churches seek cooperatively to apply religious teachings to social and economic problems. Unless this is done, some religious leaders fear a resurgence of a spirit of cynicism such as followed the last war.

5. Some of the smaller sects have become more aggressive, particularly in defense areas, and less inclined to cooperate with other groups. This is noticeable among the more emotional and ultra-fundamentalist bodies whose ecclesiastical vigor seems largely dependent upon exclusive doctrinal interpretations, combined with resistance to the out-group.

6. The war has not eliminated racial and religious hatreds on the home front. It has merely pushed the issue into the background temporarily. A wave of persecution of minority groups during the period of post-war readjustment is a distinct possibility unless there are more basic changes in the attitudes of civilians than have been observed in recent months.

EDITOR'S STATEMENT

In deference to war-time conditions, the Pacific Sociological Society held no annual meeting in 1943. It was decided, nevertheless, to publish the annual *Proceedings*—the papers to be selected by a committee consisting of the President, the Program Chairman, the Secretary, and the Editor. Selections were made from a list of topics offered by individual members in response to a letter inviting possible contributions. Eight papers were selected originally, but the authors of two found themselves unable to complete the assignments. This fact, together with financial limitations that prevented the publication of one somewhat lengthy paper that could not adequately be condensed, accounts for the comparatively small issue that is the 1943 *Proceedings* of the Pacific Sociological Society.

CARL F. REUSS

OFFICERS FOR 1943
PACIFIC SOCIOLOGICAL SOCIETY*President*

Glen E. Carlson.....University of Redlands

Vice President: Southern Division

Melvin J. Vincent.....University of Southern California

Vice-President: Central Division

Dorothy Swaine Thomas.....University of California

Vice-President: Northern Division

Norman S. Hayner.....University of Washington

Secretary-Treasurer

Calvin F. Schmid.....University of Washington

Editor

Carl F. Reuss.....State College of Washington

Program Chairman

Ray E. Baber.....Pomona College

*Representative to Executive Committee of
American Soc. Society*

Paul H. Landis.....State College of Washington

Advisory Council

Robert H. DannOregon State College

Martin H. Neumeyer.....University of Southern California

William KirkPomona College

Samuel Haig JamesonUniversity of Oregon

Elon H. Moore.University of Oregon

NEWLY ADOPTED CONSTITUTION AND BY-LAWS

The following Constitution and By-Laws of the Pacific Sociological Society were adopted by the membership of the Society in mail balloting conducted during the month of March, 1944. Approximately one-half of the membership participated in the balloting. The Constitution and By-Laws were written by a committee consisting of Paul H. Landis, the State College of Washington, chairman, and Calvin F. Schmid, University of Washington.

A. CONSTITUTION

ARTICLE I. NAME

Section 1: The name of this organization shall be the Pacific Sociological Society

ARTICLE II. PURPOSE

Section 1. The purpose of this organization shall be to promote both sociological research and the teaching of sociology in the Pacific Area.

ARTICLE III. MEMBERSHIP AND DUES

Section 1: Any persons interested in the purposes of this Society who meet the requirements for membership set forth in the By-Laws, Article I, may be eligible for membership upon application to the Secretary

Section 2 Dues of the organization shall be \$1 50 per year for individual members; for institutions within the region of the Pacific Sociological Society, \$5 for those with fewer than five (5) sociologists on the staff, and \$10 for those with five (5) or more members on the staff.

ARTICLE IV. OFFICERS

Section 1: The elective officers of this organization shall be a President, three (3) Vice-Presidents, one from each division, a Secretary-Treasurer, and a Representative to the Executive Committee of the American Sociological Society.

Section 2: The President shall preside at the business sessions of the Society, shall be ex-officio chairman of the Advisory Council, and shall act as chairman of the Program Committee during the year in which he serves, appointing as many assistants as he may deem advisable.

The term of the President shall be for one (1) year only; he may not be re-elected to succeed himself.

Section 3: The Vice-Presidents are responsible for carrying on the activities of their respective divisions and shall perform the usual functions of the President and Program Chairman for their respective divisions.

The Vice-President in the division from which the President is elected shall be known as the first Vice-President. In the event of death, resignation, or absence of the President, the first Vice-President shall assume the duties of the President of the Society.

The term of each Vice-President shall be for one (1) year; he may not be elected for consecutive terms.

Section 4: The Secretary-Treasurer shall be responsible for the collection of dues and shall receive and have the custody and disbursement of funds of the Society, subject to the rules and orders of the Advisory Council; he shall keep the records of the Society, he shall act for the Advisory Council as coordinating officer of the Society; he shall publish notice of the activities of the Society in the leading sociological journals, and in general promote the activities and influence of the Society

The Secretary-Treasurer shall be elected for a term of two (2) years and may be re-elected

Section 5: The representative to the Executive Committee of the American Sociological Society shall represent the interests of the Pacific Sociological Society on the Executive Committee of the parent organization and shall present views of the President and Advisory Council of the Pacific Sociological Society to the national group, in addition to fulfilling his functions as a representative of

the Executive Committee of the American Sociological Society as provided by the constitution of that body

His term of office shall be three (3) years; he may not succeed himself.

ARTICLE V. OFFICIAL PUBLICATION

Section 1 The Society shall issue a publication, *The Proceedings of the Pacific Sociological Society*

ARTICLE VI STANDING COMMITTEES

Section 1. An Advisory Council of six (6) members shall be set up to establish policy for the Society. Matters of general interest to the Society shall be submitted to this Council for recommendation at the ensuing meeting or for action *ad interim*

Section 2 One (1) of the members of the Advisory Council shall be the retiring president, who will serve for one (1) year. Five (5) members shall be elected and shall serve a term of three (3) years. Two (2) shall retire each year, except on the third year, when only one (1) shall retire. Each division shall have at least one representative at all times

Section 3 The Editorial Committee shall consist of an Editor and two (2) Assistant Editors, appointed by the retiring President with the approval of the Advisory Council, at the time of the annual meeting. The Editor's appointment shall be subject to a vote of approval of the Society at its annual business session.

Section 4 The Editorial Committee shall be in charge of the publication of *The Proceedings of the Pacific Sociological Society* and shall also recommend to the national society any papers which it feels should be presented on the subsequent meeting of the national group and/or appear in the sociological journal of that body.

Section 5. A Membership Committee shall be appointed immediately after the annual meeting by the incoming President to assist the Secretary-Treasurer in the collection of dues and obtaining of new members

Section 6 The Membership Committee shall include at least one (1) person from each of the divisions.

ARTICLE VII ELECTIONS

Section 1: All officers of the Society and the members of the Advisory Council (except the retiring president, who automatically becomes a member of the Council for a one-year term) shall be elected by mail ballot by a majority vote of the members of the Society. (See By-Laws, Article II)

ARTICLE VIII MEETINGS AND SESSIONS

Section 1 The term "business session" as used in the Constitution and By-Laws shall refer to a gathering of the Society at which business is transacted. The term "meeting" shall refer to a gathering for the purpose of presenting a program of papers and discussion.

Section 2. The Society shall hold an annual meeting, including both a business session and a discussion session, the time and place to be determined a year in advance at the business session of the annual meeting. When the time and place cannot be so agreed upon, the selection of a time and place shall rest upon the Advisory Council. In national emergencies, such as war, the Advisory Council may dispense with the annual meeting.

Section 3 Other meetings or sessions shall be held upon the vote of the Society.

Section 4 A quorum shall consist of two-thirds of the members present at the business session.

Section 5. Meetings of the divisions may be held at the discretion of the members or officers of the respective division.

ARTICLE X. AMENDMENTS

Section 1: Amendments to this Constitution may be made at any regular annual business session of the Society by a two-thirds vote of the members present, provided the full membership has had three months to consider the proposed

changes prior to the annual meeting. Otherwise, proposals made for constitutional changes must, after discussion at the annual business session, be carried over to the following year's business session for final action, or submitted to the decision of the entire membership by mail ballot.

B BY-LAWS

ARTICLE I MEMBERSHIP

Section 1. All teachers and research workers in sociology in universities, standard colleges, junior colleges, and high schools, graduate students in sociology, persons engaged in the profession of social work, and other persons recommended by the Membership Committee, shall be eligible for membership, and upon the payment of dues shall become members.

Section 2. The Society shall include the geographical area west of the Rocky Mountains and the states of Montana, Arizona, Utah, New Mexico, and Nevada, the territories of Alaska and Hawaii, and the province of British Columbia.

Section 3. The Northern Division shall include Oregon, Washington, British Columbia, Idaho, Montana, and Alaska, the Central Division, northern California (Fresno and north), Nevada, Utah, and Hawaii; the Southern Division, the area south of Fresno in California, Arizona, and New Mexico.

Section 4. Each member, both individual and institutional, shall receive one copy of the annual *Proceedings*.

Section 5. Only members in good standing may be nominated for office or cast ballots for officers. "Good standing" is defined as having paid dues for a current year.

ARTICLE II ELECTIONS AND VOTING

Section 1. All officers elected by the membership at large shall be elected by a mail ballot.

- (a) The Nominating Committee shall select two nominees for each office to be filled. Not later than September 1 they shall instruct the Secretary of the Society to prepare a ballot listing these nominees and leaving one blank space for each office for additional nominations from the membership.
- (b) These ballots shall be sent out to the membership prior to October 10, with instructions to vote for officers either by checking the names of nominees listed or by entering names of additional nominees.
- (c) This election shall be final unless the name of a member in good standing is entered for a particular office by at least one-tenth of those returning ballots, then that person shall be considered nominated for that office, and a new ballot shall be sent out for voting on all offices for which new nominees are thus presented.
- (d) Ballots must be returned to the chairman of the Nominating Committee before November 1, and a second ballot (if needed), not later than December 15.
- (e) Not later than June 1 the Secretary shall place in the hands of the Nominating Committee a list of those who have occupied all offices of the Society since its founding, and also a list of the paid membership.
- (f) In the final balloting, the person receiving the largest number of votes cast shall be considered elected. During years when two vacancies are to be filled in the Advisory Council, the two of the four nominees receiving the highest number of votes shall be declared elected. If there is a tie vote, the Nominating Committee shall choose one candidate by lot.
- (g) The slate of new officers shall be announced by the Nominating Committee at the time of the business session of the annual meeting. The new officers shall take charge of the affairs of the Society after the close of the annual meeting.
- (h) All ballots cast, together with pertinent data and records of the Nominating Committee, shall be submitted to the President of the Society immediately after the report of the Committee has been completed, and, if found to be satisfactory, shall be certified by him to the Society in the business session as

true and accurate. The Secretary shall hold all such material in safe custody for a period of at least eighteen (18) months.

Section 2: The Secretary shall record the results of the mail ballot and all other voting by the Society

ARTICLE III. COMMITTEES

Section 1. Nominating Committee:

- (a) The President who is completing his term of office shall appoint, with the approval of the Advisory Council, at the time of the annual meeting, a Nominating Committee consisting of five (5) persons, including at least one (1) from each division.
- (c) The Nominating Committee shall make nominations and carry out the elections as provided for in Article II of the By-Laws

Section 2. Auditing Committee.

- (a) The President shall appoint at the annual meeting a committee of three (3) to audit the records of the Treasurer and certify to their accuracy

ARTICLE IV RELATION TO AFFILIATED ORGANIZATIONS

Section 1 The Pacific Sociological Society in 1941 was granted a charter as Chapter No 9 of the American Sociological Society with all the rights pertaining thereto as outlined in the Constitution of the American Sociological Society published in the *American Sociological Review* of February, 1942

Section 2 As Chapter 9 of the American Sociological Society, this Society shall be entitled to one representative on the Executive Committee of the parent group. Such a representative must be a member of the American Sociological Society

ARTICLE V PUBLICATION AND SALE OF THE PROCEEDINGS

Section 1. The *Proceedings* of the Society shall present a selection of papers given at the annual and divisional meetings of the Society. Papers given at divisional meetings shall have the same consideration for publication as those presented at the annual meeting.

- (a) All papers to be considered by the Editorial Committee for publication shall be submitted to the Editor prior to February 1 of the year in which the *Proceedings* is issued
- (b) The Society reserves prior right to the publication of all papers presented at the annual and divisional meetings. It does not object to subsequent publication elsewhere, and provides, as noted in the Constitution, Article VI, Section 3, that the Editorial Committee shall even recommend presentation and/or publication of selected papers of its own membership through the channels of the American Sociological Society
- (c) Each member of the Society is entitled to one free (1) copy of the annual *Proceedings*. Additional copies shall be sold at \$1 per copy

Section 2: Editorial Committee

- (a) The Editorial Committee shall contract for publication of the *Proceedings*, shall sell and collect for the sale of the same, and shall submit to the Secretary annually an inventory of all copies in stock and of receipts and disbursements incurred by the sale and distribution of the same
- (b) The Editorial Committee is authorized to select, edit, and reject papers, and to make abstracts and condensations of papers as they find necessary for publishing the best *Proceedings* that is possible with the space and funds available for publication

ARTICLE VI AMENDMENTS TO THE BY-LAWS

Section 1: Amendments to these By-Laws may be made by vote of two-thirds majority of those present at any business meeting of the Society or by a two-thirds majority of those voting in a mail ballot in which at least 40 per cent of the membership votes.

OFFICERS ELECTED FOR 1944

In the election conducted by mailed ballots, the following officers of the Pacific Sociological Society were elected for 1944:

President William C Smith, Linfield College

Vice-Presidents:

Northern Division Robert H Dann, Oregon State College

Central Division Richard T LaPiere, Stanford University

Southern Division Ray E. Baber, Pomona College

Secretary-Treasurer Calvin F Schmid, University of Washington

Members of the Advisory Council:

Dorothy S Thomas, University of California

Erle F Young, University of Southern California

MEMBERS OF THE SOCIETY, FEBRUARY, 1944

Mr. Harold W Allison, Eugene High School, Eugene Oregon.

Dr. Ray E. Baber, Pomona College, Claremont, Calif.

Prof. Edna W Bailey, University of California, Berkeley, Calif

Dr Glen A Bakkum, Oregon State College, Corvallis, Ore

Prof Laile E Bartlett, University of Washington, Seattle, Wash.

Dr. Lawrence Bee, University of Oregon, Eugene, Ore

Dr J V Berreman, Office of War Information, 111 Sutter Street, San Francisco, Calif

Prof K. R. Blakeslee, Pacific University, Forest Grove, Ore

Dr Leonard Bloom, University of California at Los Angeles, Los Angeles, Calif

Dr. Emory S. Bogardus, University of Southern California, Los Angeles, Calif

Prof. Arthur E. Briggs, Metropolitan University, Los Angeles, Calif

Dr. Glen E. Carlson, University of Redlands, Redlands, Calif

Ensign David B Carpenter, U S N R., Military Government School, 431 W 117th, New York 27

Dr. Clarence M Case, University of Southern California, Los Angeles, Calif.

Prof Pearl E. Clark, Chaffey Junior College, Ontario, Calif

Dr. Joseph Cohen, National Housing Agency, Vance Building, Seattle, Wash.

Dr F. A Conrad, University of Arizona, Tucson, Ariz

Dr. Margaret Conway, Wheaton College, Norton, Mass

Prof. Robert H Dann, Oregon State College, Corvallis, Ore

Prof Earl D Davis, Pasadena Junior College, Pasadena, Calif

Dr. George M Day, Occidental College, Los Angeles, Calif.

Prof Carl E. Dent, State College of Washington, Pullman, Wash

Prof Virginia J Esterly, Scripps College, Claremont, Calif

Miss Frieda Fligelman, 2509 Parker Street, Berkeley, Calif

Dr Elton F. Guthrie, University of Washington, Seattle, Wash

Prof. Natalie C Hall, Humboldt State College, Humboldt, Calif

Mr Paul K. Hatt, Dept. of Sociology, Miami University, Oxford, Ohio

Dr. Norman S Hayner, University of Washington, Seattle, Wash.

Prof Walter Scott Hertzog, Chapman College, Los Angeles, Calif.

Prof. David E. Henley, Whittier College, Whittier, Calif

Prof. Harry F. Henderson, Whittier College, Whittier, Calif.

Prof. Glen Hoover, Mills College, Oakland, Calif

Prof. J. Randolph Hutchins, Lewis and Clark College, Portland, Ore

Prof. Charles E. Hutchinson, University of New Mexico, Albuquerque, N Mex.

Dr Harold S. Jacoby, W.R.A., 226 West Jackson Blvd., Chicago, Ill

- Prof. Samuel Haig Jameson, University of Oregon, Eugene, Ore.
Dean Arlien Johnson, University of Southern California, Los Angeles, Calif.
Mr. Leo Jones, 802 Franklin, Santa Monica, Calif.
Mr. Joe J. King, Farm Security Administration, Terminal Sales Building, Portland, Ore.
Prof. William Kirk, Pomona College, Claremont, Calif.
Dr. Richard T. LaPiere, Stanford University, Stanford University, Calif.
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RESEARCH STUDIES OF THE STATE COLLEGE OF WASHINGTON



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Pullman, Washington

RESEARCH STUDIES
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RESEARCH STUDIES of the STATE COLLEGE OF WASHINGTON

Volume XII

June, 1944

Number 2

THE BOTANICAL COLLECTIONS OF WILHELM N. SUKSDORF,¹ 1850-1932

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I. INTRODUCTION

Few of the resident botanists of the Pacific Northwest have become as widely known through the extensive distribution of their collections as did Mr Wilhelm N Suksdorf of Bingen, Klckitat Co, Washington. For over 50 years, he collected and studied the varied vegetation of the Columbia Gorge and the rugged Cascade Range, particularly in the region around Mt Adams. Because of the opportunity of exploring this region at a time when it was still practically undisturbed, he was able to discover for the first time many mosses, fungi, ferns, and flowering plants thitherto unknown to science. His private collection is one of the largest and most important in the Pacific Northwest, its size having been estimated at 30,000 specimens. Duplicates of these are filed in nearly every large herbarium in the world.

Before his death in October, 1932, Mr Suksdorf willed his entire personal collection to the State College of Washington. During the last few years of his life, he had worked feverishly, hoping to label the specimens completely before turning them over to the College. The task was so great, however, that very little had been accomplished at the time of his death. As a result, considerable difficulty was encountered in preparing the specimens for use. During the years that it has been stored at the State College of Washington, the collection has received careful attention from several botanists: notably, Doctor Lincoln Constance, Doctor Reed Rollins, and Doctor Carl Sharsmith. Even so, the great bulk of it remained untouched. The present work of putting the collection into usable form was begun by the writer in the spring of 1941.

¹The author wishes to thank the following persons, who contributed to the solution of problems which arose during the course of these investigations: Dr Marion Ownbey, under whose direction the project was carried out; Mr Theodor Suksdorf, Bingen, Washington, only surviving brother; Mr Hellmuth Suksdorf and Miss Helga Suksdorf, Spangle, Washington; Mr Adolph Suksdorf, Roseburg, Oregon; and many others.

The peculiar problem which the collection presented arose from Mr. Suksdorf's use of symbols and abbreviations of place names to indicate the localities at which he collected. The facts that his notes were in German script and that many of his place names were not to be found on maps further complicated the problem. The plants had been pressed in newspaper-size manila folders with the field data written on the lower left-hand corner of the folded sheet. The latter consisted of one or more serial numbers, the date of collection, and a symbol. Specimens from Oregon bore the letter "O" before the serial number; Montana specimens, the letter "M". Washington specimens bore no identifying letter. Supplementing the sheets were a number of notebooks in which the data were arranged by states. Unlike field notebooks, these did not have the entries arranged chronologically.³ The data were essentially the same as on the sheets.

At first the symbols seemed to defy translation. As more of the specimens were examined, however, it was found that Suksdorf occasionally had written a locality name in full, sometimes even with a hint as to the whereabouts of the station. A short list of symbols with their meanings had been secured by Doctor F. L. Pickett from Mr. Suksdorf before the latter's death. This, together with the Suksdorf correspondence, notes, and diaries, was sufficient to make possible the translation of all of the symbols.

After the names of Suksdorf's localities had been obtained, the next problem was that of applying these names to geographical features. Most of the stations caused no difficulty whatsoever, but some did. Many of the mountains, lakes, and streams in the region did not possess accepted names in Suksdorf's day, and in such cases he had to invent descriptive names of his own or use names borrowed from the Indians. Thus, such names as "Kuhlblumenquelle" (Cowslip Spring), "Schmetterling-See" (Butterfly Lake), "Yeibach" (Beargrass Creek), "Schönberg" (Beautiful Mountain), "Prachtwald" (Magnificent Forest), and many others are frequently encountered in his notes. Valuable aids in

³ Only after many years of extensive collecting did Suksdorf realize the advantage of having a permanent system of numbers. Thus his earlier collections sometimes bear two or more numbers. The first or seasonal number is usually in parentheses and is followed by the number as revised when he adopted a permanent system. Occasionally a third number appears on the sheets—e.g., 104G, which indicates that in a group of plants sent to Gray Herbarium for determination this was number 104. This number is sometimes important since the specimens at Gray Herbarium bear it and no other. See *Rhodora* 20: 199 1918.

placing these names were several sketches on which Suksdorf had indicated the positions of some of his localities with reference to others. A running itinerary of Suksdorf's travels was compiled from the data in the available manuscripts and notes. This was found to be a reliable method for checking the accuracy of all other sources of information, and for locating approximately those stations which otherwise could not be placed. When localities were indicated by the names of farmers at whose homesteads plants were collected, the farms were located by reference to county histories and by consulting "old-timers" who were well acquainted with the region.

When transcribing his field notes to permanent labels, Suksdorf did not consider many of these minor localities to be important "Schmetterling-See", for instance, as well as many other lakes in the Chiquash Mountains, became simply "small mountain lake, Chiquash Mts.", although they were some of his favorite localities. It is often, however, highly desirable that data on a specimen be more explicit, especially when a type locality is involved. Hence it was fortunate that Suksdorf was not able to make labels for all of his plants; else many localities so clearly defined in his field notes would have become indefinite. "Wodan's Vale" would have become "rocky slope, Mt. Adams"; Bingen Mountain would now be merely "mountains, west Klickitat County"; and many other exact stations would have become lost.

The present paper is an attempt to take up where Suksdorf left off and to clarify his work. It is sincerely hoped that it will approximate the goal toward which Mr. Suksdorf strove.

II BIOGRAPHICAL SKETCH

Wilhelm Nikolaus Suksdorf was born in the village of Dransau, Holstein, twenty miles southeast of Kiel, on September 15, 1850. He was the sixth in a family of seven sons—Detlef, Philipp, Heinrich, Friedrich, Karl, Wilhelm, and Theodor—and two daughters—Anne and Louise—both of the girls dying at early ages.

On their arrival in the United States, the Suksdorfs settled in Cleona township, near Davenport, Scott County, Iowa, where the children grew up together. We know little of Wilhelm's childhood except that at an early age he showed an interest in plants. His Iowa collections are fragmentary but contain a great number of the common plants of southeastern Iowa. His notes for that period are meager, consisting for the most part of unnumbered lists of collections chronologically ar-

ranged with each scientific name accompanied by its German equivalent.

In 1874, young Wilhelm attended Iowa College, now Grinnell College, at Grinnell, Iowa. In the fall of the same year he journeyed west to study at the University of California at Berkeley, where he remained for two years, until an attack of typhoid fever caused him to give up his collegiate activities. Accordingly, at that time (1876) he rejoined his family at what is now the town of Bingen, Washington, never obtaining a degree from either college.

At Bingen, he spent the first few years helping his brothers in routine duties on their dairy and stock farm. During this time he became profoundly impressed with the wealth of plant life native to the region. Gradually he became more and more absorbed in the work of collecting and classifying plants and soon devoted most of his time to botanical pursuits. Many of the wild plants lent themselves favorably to cultivation, and some were valuable medicinally. Wilhelm was able to make a living for himself by collecting seeds, bulbs, and roots for commercial growers and nurserymen. Through these contacts his name spread to the far corners of the nation, and a great demand for his services was developed.

Because there was no one in the area who could give him much help in identifying unknown forms, he sent them to Harvard University. In this way he came to know Doctor Asa Gray. Doctor Gray was very sympathetic toward Suksdorf's needs, encouraged his collecting, and made available to him certain books which he needed very badly. The younger man's careful methods of collecting impressed the eminent botanist. "Your collection is an interesting one," the latter wrote; "you look sharp, and will be a valuable correspondent."¹ Doctor Gray was soon convinced of Suksdorf's ability as a botanist, as is indicated by the following letter:

My Dear Suksdorf

I had a letter some weeks ago from your sister² and my reply to it may have gone on to you. I wrote with the very minimum of encouragement because I wished to raise no groundless expectations, and to engage you to no botanical career unless your vocation to it is very decided. I will say now, however, that if you choose to come to us for two years, I will assure you, for the first year, \$500, which will comfortably support you here and give you time for as much botanical instruction in the University as you can take, free of all expense to you. And for

¹ July 8, 1878.

² Actually sister-in-law, the niece of George Bancroft, former ambassador to Germany, according to Theodor Suksdorf.

the second year, \$600 You shall have the option of leaving at the end of the first year, if you choose

You would, even at the end of the first year, be well prepared to undertake some distant botanical exploration, if so inclined, or to be put as botanist on some of the distant explorations which now and then offer with fair pay and good chance of botanical distinction

Or, if we suit and you like it, you might count on an increase in pay up to \$1000, perhaps by steps

At 76 I cannot last long Mr Watson would then be director and you might be curator, still with the chance of going on expeditions if you wished How would this strike you?

Suksdorf became Doctor Gray's assistant in the herbarium at Harvard University in 1887. His work consisted mainly of working over his own collections and preparing them for distribution to the herbaria of the world. His intimate association with Doctor Gray made him a deep admirer of that great botanist. Always an extremely shy individual, Suksdorf found in the veteran scientist a counselor and friend who understood his nature and appreciated his abilities.

Although Suksdorf enjoyed his work with Doctor Gray, for some unknown reason his health and disposition did not fare very well at Cambridge. Doctor Gray's death, in 1888, left him broken in body and spirit. Doctor Robinson later wrote:

Mrs Gray once told me that he [Suksdorf] was constitutionally subject to periods of melancholy and that he was so deeply affected by Dr Gray's death that it became necessary for him to go to a sanitarium for treatment. I think it was probably on the advice there received that he adopted forms of activity which kept him much in the open and were probably an influence in his continued and very useful efforts along botanical lines^a

His last few months at Cambridge unquestionably marked the turning point in Suksdorf's botanical career. As an old man, he remarked in retrospect:

Had Dr Gray lived for a longer time, things would probably have been different. Not long before he [Gray] fell sick, Mr Pringle, the great collector, was at Cambridge, ready to start on another trip to Mexico. The evening before he was going to leave, he came to me and wanted me to go along with him. The matter came up so suddenly and Dr Gray had not said anything to me about it, and there seemed to be hardly any time to think about it, so I told Mr Pringle that I was not ready for such a journey. Already at that time I felt so tired, so discouraged

^a July 1, 1886.

^b Letter to Doctor F. L. Pickett, Nov. 15, 1932. Mr Theodor Suksdorf makes this comment: "That Wilhelm had periods of melancholy is an error. He never had such periods at home. It was probably the surroundings so different from home."

and hopeless that I believe I did not care much about collecting. Dr Gray no doubt saw this and wanted to give me a chance to recover health. Had he advised me to go, and had there been more time, I am pretty sure I would have gone with Mr. Pringle to Mexico. In that case many things would have been different. I had come to Cambridge to go out as a collector later. It was not to be so.¹

After Suksdorf declined Pringle's invitation to accompany him on his trip to Mexico, and after Doctor Gray's death, he returned during the spring of 1889 to the old life among his family and friends in the state of Washington. Had he chosen to remain at the Gray herbarium, Suksdorf might have become a botanist of great renown. As Doctor Gray's last assistant, he was one of the most promising young botanists of his day.

His decision was typical of the man who was so very humble and shy in speaking of his work and who doubtless felt his shortcomings more keenly than most persons. He had never mastered the use of the English language, which he felt was so essential to his profession, and no doubt felt that he could make a greater contribution to science through working with the little-known flora of his home state of Washington. All of these things were factors which made him feel that life at Cambridge was not for him. Science need never regret his choice. What Harvard lost was made up ten-fold by the contribution that Suksdorf later made to our present knowledge of the flora of the Northwest.

Once more in his old hunting grounds, Suksdorf began to broaden his sphere of collecting. In July and August, 1890, he collected extensively along the Nooksack River in Whatcom County; his trips down the Columbia River to Portland and the ballast grounds near there became more frequent; the prairies in eastern Spokane County attracted his attention. He used his brother Detlef's farm at Spangle as a base for daily forays to Philleo Lake, Mica Peak, Newman and Liberty lakes, and the rolling Palouse country to the south. At home, he took a farm in "Falcon Valley," so that he might be nearer to Mount Adams. He intensified his collecting work there and continued to grow native plants in his garden at Bingen.

Above all, Suksdorf tried to remain as independent as possible. He declined all offers which would subordinate his work and make him a paid assistant of other botanists. He preferred collecting specimens for his own purposes, when and where he wished. Only once did he agree to go on a distant expedition in the pay of another botanist. In August,

¹ Letter to Walter Deane, July 16, 1920.

1912, Doctor Franz Petrak of Mähr-Weisskirchen, Czechoslovakia, who was preparing a monograph of the genus *Cirsium*, asked Suksdorf to go to California and collect several species of thistles which were poorly represented in European herbaria. Suksdorf spent July and August of the following year visiting type localities in California and collecting many species of plants. Of this journey Suksdorf wrote:

When I went to California in 1913, collecting thistles for a European botanist, I had very little time to spare. It is the only botanical trip I ever made with the help of another. I did not make money at it, yet it gave me a chance to see other regions and their floras, and I was enabled to add over 700 specimens to my own collection. There may be some botanists who still say that it was unpatriotic of me to work for a foreigner in that way. Let them do so. They never gave me a chance of that kind. Since I returned from Cambridge in 1888, a few botanists have wanted me as a help to other collectors, and that has been the limit. After I had distributed collections for a number of years myself, I did not feel like working for other collectors.*

Suksdorf's collections yielded many things which he thought were new, and he again sent them to Gray Herbarium for determination. These later contacts were not satisfactory, as may be surmised by reading the following letter which Suksdorf wrote to Doctor Robinson. This letter seems to sum up Suksdorf's feelings completely and is quoted in full:

During the last ten years or more, I have sometimes sent you small lots of plants. I never received a report on them, except on a few plants mostly determined by Prof. Greenman. I am therefore still unacquainted with the names of many of the plants I have sent you. I may be wrong, but am inclined to believe that no further sendings are desired. That would make it very difficult for me, for I would be forced to try some other place. If I send my specimens to Washington City botanists, I will have to adopt their set of names, at least to a great extent. I am very sorry that it has come to this. But I do not want to complain. What I can do in return for having my plants determined will probably not pay for the trouble. Last year I sent you only such things as I could not determine myself. I would not hesitate a moment to send you specimens of what I think are new species and varieties, if it were not for certain reasons. I cannot expect you or anyone else to look up everything in regard to these plants, just for my own benefit. In the matter of species or variety it is naturally difficult for two persons to agree in a number of cases, and so it might be unpleasant sometimes, if I did not always accept your view. Then again, I know from experience that it is not well to send out new plants under unpublished names, and the chances I have of publishing anything are very slim. What I have thought about this matter is this; I would publish those few things that I could pretty safely call new, and

* Letter to Walter Deane, July 16, 1920.

send the difficult or doubtful plants to the Gray Herbarium for determination. But I have never acted quite accordingly, since I am not in a position to make suggestions. You have sometimes sent me some specimens; you have named several species for me, and I appreciate these things. So, if you find it too difficult or impossible to help me any further, I will not say a word about it. Permit me, however, to say a few words about something else. Although that is not agreeable to me, I think it is necessary. For a period of 8 or 9 years I sent most of my plants to Dr. Gray. To me this was a very pleasant time and I regret that it did not last longer. There was almost always something of interest, and all along I felt that I was helping. In regard to Prof. Watson, who determined a large share of my collections, my experience was somewhat different. I could not help believing sometimes that he did not like my way of doing things.

I knew almost from the start that very few of my specimens were kept at Cambridge, and also that the determination could not always be correct, yet I was surprised to learn later that so many of the names received from Prof. Watson were incorrect. Thus, among the first 16 numbers of my first distribution (1881) there were 7 plants incorrectly or incompletely named on their labels, namely.

- | | | | |
|-----|--------------------------------|---|---|
| 1 | <i>Clematis ligusticifolia</i> | — | <i>C. Suksdorfii</i> |
| 2. | <i>Anemone nemorosa</i> var | — | <i>A. Oregona</i> , or <i>A. qu. v. Or.</i> |
| 7. | <i>Ranunculus Nelsoni</i> | — | <i>R. tenellus</i> |
| 8. | <i>Delphinium simplex</i> | — | <i>D. distichum</i> |
| 9 | <i>Delphinium scopulorum</i> | — | <i>D. Nuttallii</i> |
| 14. | <i>Arabis Lyallii</i> | — | <i>A. microphylla?</i> |
| 16. | <i>Arabis canescens</i> | — | <i>A. furcata</i> |

Four of these were later described as new species. In this same collection of 300 numbers, when ready, there was no species that had recently been described as new, except perhaps *Poa pulchella*, and yet it contained specimens of many later very distinct species, such as *Gayophytum pumilum*, *Ferula purpurea*, *Polygonum Sawatchense*, *Calochortus longebarbatus*, etc. Later collections were similar in this respect. In one of them I distributed a plant which I thought might be *Cardamine Breweri*. Prof. Watson simply made the remark "hardly," and I could do nothing but distribute the plant as an undetermined species of *Cardamine*. When a year or two later I handled a specimen of the same species one day in the Gray Herbarium, I saw at once that my plant was the old *Nasturtium officinale*, which I had never seen in cultivation. When I told Dr. Watson about this, he smiled and said not a word. Specimens of a *Lepidium* were sent one time, but never named. Many years later, after my return from Cambridge I saw the same thing, I am pretty sure, in a farmer's garden. It proved to be *L. sativum*, which I had never before seen in cultivation. I am sorry that my first specimen, if I kept one, was lost. It is a puzzle to me, why Prof. Watson did not put me right in such cases. Did he believe I must know these plants and just sent them with the intention to fool him? I have never done anything of that kind; have never thought of doing so; I never send anything to deceive or mislead any one. Now, if I mention these things, it might be inferred that I had a sort of a grudge against Dr. Watson, even today, long after his death. Nothing of the kind. I

have worked for him and have done the best I could, I believe, and after my return to this state, I have continued to send him specimens. It may have been impossible to avoid so many errors, it may have been the custom to name plants provisionally; I do not know. But since I was compelled to distribute collections so imperfectly named, it should not surprise anybody that, after the death of Dr. Watson, I undertook to determine some of my collections almost all alone. My lists will show, however, that I did not try to name everything I had. Furthermore, it was the time when many botanists were at work undermining the system of names in use, and continually digging up older names. Thus almost every name seemed to be doubtful. While I was at work on my collections, I received a letter from you. To send you all the unnamed and doubtful plants would have been the proper thing to do. Instead of that, I sent you a specimen of *Stellaria*, which I thought could not be *S. borealis*. But in your reply you gave me just that name, which I had to use, as I did not venture to name a new species in that genus. I must say that this decided the matter, a varietal name even would have satisfied me. But now I concluded that all the plants, that I took to be unnamed, would have to be sent out under well-known names. Later I saw, of course, that I had not done the right thing. You would not have gone over my plants in the same way Prof. Watson had done, I am pretty sure now. That I distributed plants under unpublished names, cannot be surprising. Attempts to publish them had failed, as later ones did for a long time. It was the only way I saw, to express my opinion about the plants; yet I knew, of course, that that was not wanted by any one.

It seemed to be necessary to make these remarks for the purpose of explaining certain things I have done. I think it would not improve matters if I refrained from writing about plants altogether.

Among the plants collected last year, I have a few things that I cannot place. I would send them, but almost fear there will be no answer or not a favorable one, especially since I know that Mr. Pringle has just returned.*

Saksdorf had decided that, if he believed one of his plants constituted a new species, he would publish it himself. Since he did not feel capable of publishing in English, and very few American publications accepted articles written in a foreign language, he resorted to publishing his notes on Washington plants in European publications, such as *Deutsche Botanische Monatsschrift*, *Oesterreichische Botanische Zeitschrift*, and *Allgemeine Botanische Zeitschrift*. This brought the indignation of many botanists down upon his head.

When criticized for his practice, he replied:

You say that it is better to publish papers on our flora in American journals. I agree with you. Before I had some of my papers printed in Europe, I went to nearly all of our botanical journals but they would not accept them.

A few years ago I made a collecting trip of several months in California. It

* January 31, 1905.

was a European botanist (not a German) who enabled me to make that trip. Botanists of our own country have never gone further than to offer me a place as a helper or assistant to some other collector, and that after I had distributed collections myself for five or six years.

Once Rydberg wanted some *Potentilla* specimens I sent him a lot as complete as possible, hoping to get his determinations. He never sent me any, believing perhaps that I would find them in his book; but that book was out of my reach. Some time later I sent another lot of potentillas to a European botanist, who at once gave me his determinations, and I believe I had not asked for them.¹⁰

As Suksdorf became older, his health began to fail, and he was advised by his doctor to avoid exposing himself to the rigors of the weather, since in so doing he would be in danger of suddenly going blind. Thus in the years 1920 to 1932 he restricted his travels mostly to one-day excursions in the vicinity of his home at Ringen. During that time he had an opportunity to work his collection over carefully. At the invitation of Doctor Pickett, Suksdorf occasionally came to Pullman, where he would have better facilities for study, and in 1928 the college conferred upon him the degree of Honorary Master of Science in Botany.

During his later years, Suksdorf was able to publish a little scientific journal of his own: *Werdenda*. By way of explanation he wrote:

The meaning of the name 'Werdenda' is explained in No. 1 *Werden* is a German verb which has no equivalent in English. It means to become, to grow, to turn, to begin to be, etc. *Werdend* is the participle. The name 'Werdenda' is intended to mean that the contents are raw material which Science will have to examine carefully before accepting it. At the same time the present is meant, the time of growth, of activity, the time when changes take place.¹¹

Werdenda, like so many plants, starts life late in the season, facing the dangers of an approaching winter. The first two leaves have appeared, a heavy frost will often lift a seedling out of the soil.¹²

In this publication Suksdorf described new and noteworthy plants of Washington, and in the final installment he published his largest and most significant work, a monograph of the genus *Amsinckia*.

On October 2, 1932, Suksdorf was struck down and killed by a train near his home at Ringen. Thus came to an abrupt close the life of one of the last of America's pioneer botanists. But behind him he left an enduring monument to a lifetime spent in earnest endeavor in the interests of Science.

¹⁰ Letter to F. W. Pennell, July 21, 1920.

¹¹ Letter to Charles Piper Smith, Jan. 11, 1924.

¹² Letter to F. L. Pickett, Nov. 28, 1923.

III ITINERARY

The following itinerary was compiled from Suksdorf's field notebooks, diaries, labels, and correspondence. It includes all of Suksdorf's botanical excursions from 1872 to 1932.

1872-73

Scott Co., Iowa

1874

April 25, Grinnell, Iowa

May 1-30, Grinnell, Iowa.

June 1-27, Grinnell, Iowa

June 6-31, Cleona, Iowa

Aug 1-27, Cleona, Iowa

Sept 11, Antelope, Nehr., Sherman, Wyo 12, Percy, Wyo 15, Humboldt Valley, Nev 26-30, Berkeley, Calif

Oct 2, 4, Berkeley

1876

Jan 1-June 1, Vicinity of Berkeley 3, began sea voyage from San Francisco 7, arrived at Astoria, Ore 8, Bingen

Nov 6, Bingen

1877

Jan 28, Bingen

March 16-17, 21, Bingen

Sept 14, Ice Cave. 16, Bird Creek, Mt Adams 18, Mt Adams.

Oct 10, Bingen

1878

April 14, Bingen

1879

Sept —, Mt Adams

Oct. 28, Bingen

Nov —, Bingen

1880

March 7, Bingen

April 11, 16, Hood River 20-23, 25, 27, Bingen

May 4-6, Bingen 9, Little Klickitat River 12, Rockland, Little Klickitat River; Klickitat Valley 13, Klickitat River, Bingen 29, Falcon Valley.

June 13-14, 20, 24-26, 28, 30, Falcon Valley

July 2, 6-8, 19, Falcon Valley 20, White Salmon River valley; Bingen. 22, 31, Falcon Valley

Aug. 1, 3, 6, 27, 30, Falcon Valley

Sept 1 4, 9, Falcon Valley 18-20, Bingen 24-26, southeast side of Mt. Adams (Bird Creek; "Ellerbach") 29, Bingen

Oct 12, 15, Bingen

1881

Mar 8, 23, Bingen. 25, The Dalles.

Apr. 14, 21-22, 24-25, 28, Bingen.

May 2, 5, 7, Bingen. 10, 18-20, Falcon Valley 21, Falcon Valley; Larm River 24-27, Bingen

June 1, 6-7, 9, 11, Bingen. 13 Bingen; Falcon Valley. 17, 22, 24-27, Falcon Valley.

July 1, west Klickitat Co 4, Bingen 5, 7, Falcon Valley. 8, Bingen. 11-13, Falcon Valley; Klickitat River 16, 18, Falcon Valley. 23, Bingen.

Aug 3-4, 15, Bingen. 22, Klickitat Co 30-31, Mt. Adams, 3000-5000 ft.; west Klickitat Co.

Sept 2-3, Falcon Valley; Bingen 4, Bingen. 7, Falcon Valley. 14, Bingen. 15, Klickitat Co. 16, Falcon Valley.

Oct. 1-2, Mt Adams 3-4, Falcon Valley. 8, 12, 28, Bingen

1882

April 4, Bingen 14, Larm River. 20, Bingen 24, Hood River. 25, Bingen.

May 1, west Klickitat Co. 8, Salmon Creek; Vancouver 11, Larm River. 17, Falcon Valley 20, 22, 24, Bingen 27, Falcon Valley

June 1, Portland, Fishers Landing; Cascades 2-3, Cascades 7-9, Bingen. 10, Falcon Valley 11, Salmon Creek [?]. 19, Bingen. 23, Klickitat Co. 24, 27-29, Falcon Valley

July 6, west Klickitat Co; Mt. Adams. 7, Mt. Adams. 10-12, Falcon Valley 15, Falcon Valley; Larm River 18-19, Bingen. 20, Hood River. 22, Bingen 27-28, Falcon Valley.

Aug. 3-4, Falcon Valley. 8-11, Mt Adams 19, Bingen. 21, Mt Adams. 23, Falcon Valley. 25-26, Bingen 30-31, Mt. Adams.

Sept 1-2, Mt. Adams. 5-6, Falcon Valley 11-12, Mt. Adams 14, Falcon Valley. 20-21, Mt Adams, 6,000-7,000 ft 26, Bingen

Oct 3, Falcon Valley 5, Little Klickitat River; bunchgrass prairie between Klickitat River and Goldendale

Dec 6, Bingen

1883

March 22, Bingen.

April 3, 5, 9, 25-26, Bingen

May 3, Hood River. 10, Falcon Valley. 18-19, 22, Bingen. 24, Falcon Valley. 25-26, Bingen. 30, Larm River.

June 1, Falcon Valley. 2, Falcon Valley, Klickitat River near Mt Adams; Mt. Adams 3, Falcon Valley. 4, Falcon Valley; Larm River 5, Falcon Valley 6, west Klickitat Co. 12, Bingen. 15, Falcon Valley; Bingen; Hood River. 16-17, Bingen. 20, Hood River. 21, Bingen; Larm River. 25, Larm River. 26, Mt. Adams 27, Mt. Adams; Larm River. 28, Falcon Valley. 29, Mt. Adams.

July 9, Hood River. 13, The Dalles 16, Bingen 17, Larm River. 20, 25-26, 28, Falcon Valley.

Aug. 1, Mt. Adams. 2, Falcon Valley. 3, Larm River; Mt. Adams. 7-8, 20-21, Bingen. 25, Falcon Valley.

Sept. 4, Falcon Valley 6, Butterfly Lake. 7, Butterfly Lake; Peters

Prairie. 8, Trout Lake Valley. 12, Falcon Valley. 14-17, 19, Mt Adams.
28-29, Bingen

Oct. 3, 6, 23, Bingen

1884

Apr. 19-20, Bingen 21, Mitchell Point; Hood River 25, Bingen

May 1, Larm River 2, Klickitat River, Mt Adams; Falcon Valley.
3, Falcon Valley 4, Rattlesnake Creek, near Husum. 8, Hood River. 10,
Falcon Valley 12, 15, Bingen. 18, Klickitat River; Falcon Valley; Mt
Adams 19-20, Falcon Valley 22-24, 27, Bingen 30, Hood River, Mitchell
Point 31, Bingen; Falcon Valley

June 4, Wilken's ranch, High Prairie 5, Klickitat Valley; Pitman's ranch.
6, Cleveland; Pitman's ranch, Simcoe Mts, west of Bickleton. 7, Patterson's
ranch; the Glade; Morgan's Ferry 8, Morgan's Ferry; Rattlesnake Mts. 10,
east of White Bluffs; Crab Creek. 12, Black Rock Spring, Crab Creek. 13,
Crab Creek, Duck Lake 14, Crab Creek, Cottonwood; Cheney; Spangle.
18, 20, 23, 25, 30, Spangle

July 1-3, Spangle 15, Trout Lake, Trout Lake Valley 21, Trout Lake;
race track west of Peters Prairie. 25, 27, Mt. Adams.

Aug 2, Falcon Valley

Sept 11, Falcon Valley 12, Larm River 13-14, Falcon Valley 17-19,
Mt. Adams 24, Klickitat Co.

Oct 6, Bingen.

1885

Mar. 18, Larm River. 31, Hood River

Apr. 8-9, 20, Bingen 27-28, Falcon Valley. 29, Falcon Valley; Little
Prairie 30, "Aschberg".

May 6, 9, 15-16, 23, 25, Bingen. 27, Mt Adams. 28, Hood River 29-30,
Bingen.

June 2-3, Bingen. 10, Klickitat River 11, Falcon Valley. 12, Klickitat
River. 13, Mt. Adams; Klickitat River; Falcon Valley 18-20, Bingen 26,
Falcon Valley; Klickitat River 28-30, Mt. Adams (6000-7000 ft)

July 1-3, Falcon Valley. 16, Rooster Rock; Bridal Veil; falls below Bon-
neville. 17, Bonneville 19, 22, Bingen. 29, between Gilmer and Falcon
Valley; Little Prairie. 30-31, Falcon Valley

Aug. 1, Falcon Valley. 4-8, Mt. Adams (northwest side). 10-12, Mt.
Adams 14, Falcon Valley 15, Klickitat River 21-22, Bingen.

Sept. 10, Bingen. 11, Mt. Adams 16, Gilmer 19, Mt. Adams. 21, Falcon
Valley. 23-24, Klickitat River. 25, Falcon Valley

Oct. 7, Bingen.

Nov. 17-19, Bingen

1886

Mar. 12, 30, Bingen.

Apr. 10-11, Rockland. 12, Columbus. 13, Columbus, The Dalles 14, 18,
Columbus; Grants. 23-24, Bingen

May 1, 4, Bingen. 5, Lyle. 6, Klickitat 7, Dead Canyon. 8, Klickitat
River. 9-10, Falcon Valley 11, Trout Lake Valley; Ice Cave; Peters Prai-

rie; Larm River 12, Larm River. 18, Bingen 20, Bingen; Cascades 25, Lower Cascades 27, Multnomah Falls; Bonneville 29-31, Lower Cascades.

June 4, Bingen, Major Creek 9-10, Falcon Valley 10, Columbus 11, Columbus; Grants 12, Grants, The Dalles 21, Bingen 24, Reynolds' [Randall's?] ranch 25, Panakanic, Dead Canyon; southeast of Falcon Valley. 26, Falcon Valley.

July 5, Mt Adams 7, 9, Falcon Valley 11, Mt Adams, "Donnerglät-scher" 12, Mt Adams 13, Bird Creek Island 16, Klickitat River. 17, 19-21, Falcon Valley 24, Peters Prairie 25, "Gerstenwiese" 26, Trout Lake. 27, Larm River

Aug 6, Peters Prairie 7, Klickitat Co 9, Skamania Co 10, "Along a westward-flowing stream, Chiquash Mts" 11, "Seenberg" 12, Butterfly Lake, "Weidesee", "Elfensee" 13, Peters Prairie, Little White Salmon River 18, Bingen 24, Trout Lake, Mt Adams 25, Trout Lake Valley 28-29, 31, "Wodanthal"

Sept 6, Bird Creek, Falcon Valley 15, Hood River, Bingen 16, "Moosbach" [or possibly Major Creek]

1887-1888

Cambridge, Mass, and vicinity

1889

Apr 15, Duck Creek, near Davenport, Iowa 26, Minneapolis, Minn 27, Sterling, North Dakota 28, Bozeman Tunnel; Stillwater, Park City, Butler, Greycliff, Big Timber; Mullen Tunnel, Montana 29, Cabinet, Cocolalla Lake, Idaho

May 6, 8, 13, 15, Spangle, Latah Creek 16, Spangle, Waverly 20, Spangle; Latah Creek 27, Spangle; Cheney 31, Spangle

June 3, 5, Spangle, Latah Creek, Rock Creek, Mica Peak. 6, Cheney 8, 10, 14, 17, 20, 24-25, Spangle; Latah Creek; 27, Cheney 28-29, Spangle, Latah Creek

July 2, 6, Cheney 8, Spangle 11, Spangle; Latah Creek, McMahon's Sawmill. 12, Spangle 14, Philleo Lake 17-18, Spangle, Latah Creek 19, Spangle 22, Cheney 24, Mica Peak 26, Latah Creek, Spangle; Marshall 27, Cheney

Aug 2, Spangle, Latah Creek. 10, Spangle 14, Philleo Lake, Spangle 15, Spangle 17, Cheney 23, Spangle 29, Latah Creek 31, Spangle

Sept 30, Spangle

Oct 3, Spangle 7, Connell, Ritzville

Nov 8, Bingen.

1890

Apr 14, Major Creek, Rockland 15, Rockland.

May 3, Bingen 8, Falcon Valley 9, Rattlesnake Creek. 21, 23, Bingen. 27, Major Creek; Bingen.

June 3, Rockland 4, 8, Bingen 12, Bingen; Falcon Valley 13, Mt. Adams 14, "Wodanthal" 16, Falcon Valley. 17, Trout Lake; Trout Lake Valley 18, Peters Prairie 19, Ice Cave 20, Trout Lake Valley, southeast of Trout Lake 26, Bingen; Major Creek

July 2, Centralia 3, Wiser Lake, Lake Washington. 5, Padden Lake; Fairhaven, Chuckanut Bay 7, Whatcom; Whatcom Lake; Sehome 8, Bellingham Bay; Fairhaven; Whatcom 11, Nooksack River; Fairhaven 12, Fairhaven; Padden Lake. 13, Chuckanut Bay; Fairhaven, Bellingham Bay, Whatcom 15, Fairhaven, Whatcom 16, Samish Lake, Fairhaven; Padden Lake 17, Chuckanut Bay 18, Padden Lake 20, McLeod Lake. 21, Wiser Lake; McLeod Lake, Nooksack River 26, North fork of Nooksack River. 27, Maple Creek; North fork of Nooksack River, near Mt Baker 28, railroad 7-8 miles east of Whatcom 29, Sehome.

Aug 1, Padden Lake 2, Bellingham, Fairhaven, Whatcom 4, Kirkland; Lake Washington 5, Union Lake, Seattle; Lake Washington 6, Portland. 16, Bingen 26, Steamboat Mountain; Burnet Creek 27, "Kerfensee"; "Seenberg"; "Ankersee", "Rundersee" 28, "Blauensee" 29, Butterfly Lake.

Sept. 11, Mt Adams 21, Bingen

Oct. 3, Mt Adams. 9, 11, 14, Bingen.

Nov 3, Hood River

1891

Apr 16, Pasco 17, Wallula 19, 29, Bingen

May 3-5, 8, 11, 14, 19-20, 22, 29-30, Bingen.

June 10, Larm River 11, High Prairie 13, Bingen

July 7, Butterfly Lake. 8, Butterfly Lake; "Wacholderberg", "Elfensee" 9-10, Butterfly Lake 11, Butterfly Lake, Ice Cave 12, Trout Lake 13, Larm River; "Aschberg"

Aug. 1, Stadelmann's garden, Trout Lake Valley 3-4, Mt Adams 19, Klickitat Co

Sept 2-5, "Wodanthal" 9, Klickitat Co 14-15, Bingen 22, 24-25, Butterfly Lake.

Oct. 7-8, 13, 18, Bingen

Nov 5, Vancouver. 6, Portland.

1892

Mar. 11, Bingen.

Apr 2, Bingen 7, Wind Mountain 8, Bingen 11, Larm River 12, 16, Bingen 19, Bingen; Major Creek. 27, 29, Bingen.

May 1, 4-5, 11, 14, Bingen 17, Larm River; Husum 18-19, 21-22, Bingen. 25, Ice Cave 27-28, Falcon Valley 30-31, Bingen.

June 2-4, 12-14, Bingen 16, Chenowith, Drano 17, 21, Bingen 24-25, 27-29, Falcon Valley

July 1, Bingen. 6, Major Creek, J Perry's farm; Rattlesnake Creek. 8-9, Hood River 16, Chenowith 17, Bingen.

Aug 1, 3-4, 11, Bingen. 17, Butterfly Lake. 18, "Wacholderberg"; Butterfly Lake; "Wollwiese"; "Scenberg"; Indian Race Track. 19, "Yei Creek"; "Gerstenwiese"; Butterfly Lake; Lava Bed. 20, "Gerstenwiese"; Butterfly Lake. 21, Ice Cave 22, Trout Lake Valley, Bingen 28, Bingen.

Sept. 6, Butterfly Lake 14, 17, 22-23, Bingen.

Oct. 1, "Wodanthal." 2, Mt. Adams. 3, Falcon Valley. 4-5, 13, Larm River. 22, 25-26, Bingen.

Nov. 1, Bingen.

Dec. 12, Bingen

1893

Apr. 7, 28-29, Bingen.

May 4, 8-9, 12-13, 15, Falcon Valley. 17, 20, 26, Bingen.

June 2, Husum, "Kressenberg" 3-4, 10, Bingen. 12, Rockland; "Klickitat-Berge" 13, The Dalles 19, Rockland 23-25, 28, Falcon Valley

July 1, Bingen. 15, 16, Milwaukie 17, Milwaukie, Vancouver 18, Portland 22, Bingen.

Aug. 4, 6, Falcon Valley 31, "Gerstenwiese"

Sept 1, "Wittenberg"; "Gerstenwiese", "Heidelberg" 2-4, "Gerstenwiese" 5, Larm River. 9, 11, 13-16, 20-22, Bingen 26-27, "Wodanthal" 28, Mt Adams, 6000-7000 ft 29, Falcon Valley.

Oct 9, Cascade Locks; Fishers Landing. 13, Bingen 29-31, Bingen

Nov 10, 21-22, Bingen.

1894

Jan. 15, Bingen

Feb 28, Bingen.

Apr 11, Sauvies Island 12, Lake River, Bachelor Island 20, 24-25, Bingen.

May 2, Underwood, Larm River. 6-7, 11, 13, Bingen 14, Hood River 17-18, Bingen 23, Hood River. 24-26, 30-31, Bingen.

June 2, 4-6, 8, Bingen 15, Bingen, Cameron's Sawmill; Larm River; Husum 17, Bingen 19, Husum. 21, Larm River

July 3, 5, Bingen. 6, Little White Salmon River; Chenowith 12, Bingen 17, Larm River 19, "Wittenberg" 20, Peters Prairie, Butterfly Lake 21, Peters Prairie 22, Peters Prairie; Ice Cave

Aug 2-3, 7, Bingen 12, Bachelor Island 15, Sauvies Island 16, Vancouver 18-19, Cape Horn 20, Cape Horn, Larm River 30, Mt Adams 31, "Wodanthal"

Sept 1, Falcon Valley. 3, Falcon Valley; Gilmer 6, Larm River 7-9, Bingen 14, Gilmer, "Aschberg" 15, Falcon Valley. 17, "Wodanthal." 18, 19, Mt Adams. 20, 27, Falcon Valley.

Oct 2, Peters Prairie 5, Larm River 10, 13-14, Bingen 19, Falcon Valley 21, Bingen

Nov. 2-4, 15, Bingen. 20, Albina.

Dec 1, Albina.

1895

Apr 11, 13, 18, 24-25, 30, Bingen.

May 4, 10, 12, Bingen. 14, Gilmer 15, Falcon Valley 16, falls of Rattlesnake Creek. 18-19, Bingen 27, Sauvies Island 28, Sauvies Island; St Helens

June 3, 6, 8-10, 12, 14, 17-18, Bingen 20, Husum. 24, Little White Salmon River 26, Little White Salmon River below "Heidelbach"; northwest of Chenowith 27, Chenowith; "Moosbach", Little White Salmon River 30, Bingen.

July 1, Bingen 2-3, Hood River; Hood River Valley. 5-8, 15, Bingen 16, Rooster Rock [?], Bingen 17, Bingen 22, Ice Cave 25, Mt Adams 26, Mt Adams, White Salmon Glacier 27, Mt Adams, "Langenbluff"; "Schwingelrück", "Dornbach" 28, Mt. Adams; source of Larm River, "Trümmerthal" 29, Bird Creek Islands 30-31, Falcon Valley.

Aug 1, Falcon Valley 3, 5-7, 10-11, 14-15, 21, Bingen 26, "Königsberg", "Wittenberg" 27, "Seenberg" 28, "Seenberg", Blue Lake, "Mümmelwiesen" 29, Butterfly Lake 30, Trout Lake Valley

Sept 1, Bingen 2, Mt Adams [?] 5, 8, 13-15, Bingen 20, Falcon Valley. 24, Mt Adams

Oct. 3, 6, Bingen 12, "Gerstenwiese." 16, Falcon Valley 27-28, Bingen

Nov 3, Sauvies Island 19, Bingen

Dec. 1, Bingen.

1896

Feb 2, Bingen

Mar 10, 30, Bingen

Apr 3, 5, 16, 21, 23-24, 30, Bingen.

May 20, Larm River 5 or 6 miles northwest of Bingen; south of Husum. 21, 26-28, 30-31, Bingen

June 3, 5-6, 9, 12-14, 16, Bingen 17, Bingen; Larm River 18, 20, Bingen 21, Mitchell Point, 24-27, Mitchell Point, Viento, Hood River

July 2-3, 6, Bingen 7, Drano 8, "Zahnberg", "Moosbach" 9, Cheno-with; "Moosbach", Drano; mouth of Larm River 12, 13-15, Bingen 16, Falcon Valley 17, Falcon Valley, Larm River 18, Falcon Valley, "Bärenthal" 20, 22, Bingen

Aug 2, Oregon City, Milwaukie; Sellwood 4-5, Bingen 12, Little White Salmon River; Drano, "Moosbach" 13, Drano 15, Bingen 20, Butterfly Lake 22, 27, Falcon Valley 28, Gilmer, Husum; Falcon Valley

Sept. 3-4, Bingen 13, Butterfly Lake 14, Indian Creek, Butterfly Lake; "Seenberg", south of Willow Lake, near the race track 17, Falcon Valley. 22, Mount Adams 24, "Fingerkrautwiese", "Kuhblumenquelle" 25-27, "Wodanthal" 28, Mt Adams

Oct. 22, "Wodanthal" 24, Klickitat Co 25, Larm River

Nov 3, Bingen

1897

Apr 3, 17, 26, 29-30, Bingen.

May 9, 12, Bingen. 14, Falcon Valley 16, "Breitenberg," south side of Mt Adams. 17, Bird Creek Canyon 18, Mt Adams. 19, Bird Creek Islands. 20, Husum, Falcon Valley 22, 28, Bingen

June 2-4, Bingen 8, The Dalles. 10, Bingen 13, Mt Adams 14, Trout Lake Valley 16, Bingen 17, Larm River, "Bärenthal." 18, Gilmer; "Bärenthal", Trout Lake Valley (at Stadelmann's farm); Larm River. 19, Ice Cave; Peters Prairie; Trout Lake Valley; Falcon Valley 20, Trout Lake Valley, Falcon Valley 21-24, Falcon Valley 25, south side of Mt. Adams ("Breitenberg") 26, "Wodanthal", "Hohlenklippe" 27, "Hohlen-

klippe," southeast slope of Mt. Adams, Bird Creek Canyon 28, 30, Falcon Valley.

July 9-10, 12, 16, Bingen. 17, Bingen; Larm River. 19, Bingen; Trout Lake Valley 24, Bingen 27, The Dalles.

Aug 9, Falcon Valley. 13, "Wodanthal"; "Riedgrasfelsen"; "Poafelsen"; "Heucherfelsen", Mt Adams 14, Mt Adams 15, "Hohlenklippe" 19-20, 23, 29, Bingen

Sept 11, 27, 30, Bingen.

Oct 5, 10, 21, Bingen.

Nov 15, Bingen

1898

Mar. 26, Bingen.

Apr. 11, 20, 24, 29, Bingen.

May 4, The Dalles. 5, Rockland and vicinity 12-14, 16-17, 19, 28, 31, Bingen.

June 9, 13, 16, Bingen. 25, "Aschberg." 26, Gilmer; "Ashberg" 27-30, Falcon Valley.

July 1, Husum; Falcon Valley. 7-8, 10-11, 21, Bingen 23, Gilmer 24, Falcon Valley 25, Peters Prairie. 26, Butterfly Lake; Peters Prairie. 27, Peters Prairie; Falcon Valley. 28, Falcon Valley, "Yei Creek." 29, Ice Cave; Mt. Adams 30, "Heidelberg"; "Gerstenwiese"; "Schneebach"; Peters Prairie, "Yei Creek"; Falcon Valley; border of Lava Bed near South Prairie. 31, Peters Prairie.

Aug 9, Bingen. 11, Trout Lake Valley. 12, Trout Lake Valley; "Trümmerthal." 13, "Mattenhalde" 14, "Rotkegel"; ridge north of "Wodanthal"; "Wodanthal." 15-17, "Wodanthal." 18, Bird Creek Canyon; "Lippenberg." 19, Falcon Valley. 23-24, Bingen 30, Falcon Valley. 31, Trout Lake Valley; Fulda.

Sept. 3, Ice Cave. 5, Ice Cave; "Yei Creek." 7, "Sindersee"; "Wollwiese." 8, Butterfly Lake; "Yei Creek" 9, Trout Lake Valley 14, 15-19, Bingen 26, Trout Lake Valley; "Bärenthal" 27-28, Falcon Valley. 30, Klickitat River; Falcon Valley; Warm Spring

Oct. 2-3, Falcon Valley. 7-8, Bingen. 18, Portland. 21, Bingen.

Nov. 2, 9, Bingen.

1899

Mar 30, Bingen.

Apr. 5, 19, 24, Bingen.

May 1-2, 6, Bingen. 10, Rockland. 12-13, 16, 18, 20-21, 23-24, 26, 28, 31, Bingen.

June 3, 5, 7, 9, 11, 13, 21, 24-25, Bingen.

July 5, 7, Bingen. 13, Milwaukie. 14, Albina; East Portland. 22, 27, Bingen.

Aug. 2, Milwaukie [?]. 4, Trout Lake Valley; "Költhal" 5, "Kolthal"; in a burned forest east of Chiquash Mts.; between "Schönberg" and "Költhal." 6, "Wittenberg"; "Konigsberg"; "Wetterburg"; "Wollwiese"; "Seenberg" 7, "Germerthal"; Peters Prairie; Butterfly Lake, "Yei Creek"; west

of Ice Caves 8, Trout Lake Valley; between Trout Lake Valley and "Schönberg"; Falcon Valley; 9, 14, Bingen.

Sept. 1, Falcon Valley 3, "Wieschalde"; "Lippenberg" 6, 7, 9, 11-12, 15, Bingen. 21, "Wodanthal." 22, Mt. Adams.

Oct 20, Trout Lake Valley 31, Major Creek.

Nov. 23, Portland; Albina.

Dec 2, Bingen.

1900

Mar. 17-19, Rockland 20, The Dalles 24, Bingen.

Apr. 9, 11, 17, 21, 27, 30, Bingen.

May 1, 16, 18, 21, 23, 25, Bingen and vicinity (Hog or Hawk Prairie; Bingen Mountain)

June 4-5, 8, Bingen. 12, Mt Adams [?]. 14, Portland. 15, Albina; Portland. 25, 28, Bingen; Hawk Prairie; Bingen Mountain

July 10, Falcon Valley 12, sunny slope near a glacier on the east side of Mt Adams, Donner's Glacier 13-14, "Wodanthal" 15, "Surterberg" ("Grasberg") 17, Falcon Valley 18, 20, 27, Bingen; Bingen Mountain

Aug 7, 9, Bingen 14, Peters Prairie 15, "Yei Creek" 16, "Yei Creek"; "Seenberg." 17, "Seenberg"; "Germerthal"; near Indian Race Track. 18, Butterfly Lake. 19, Ice Cave 20, Falcon Valley 24-25, 28, Bingen 30-31, "Aschberg"

Sept 2, "Donnerthal"; between Donner's and glaciers; "Luchsenbach"; "Farbenfelsen" 4, Bird Creek Caves, "Klee-thal." 5, "Wodanthal." 6, Mt. Adams 7, Bird Creek, above the canyon. 8, Falcon Valley 25, Ice Cave. 26, "Heidelberg"; "Gerstenwiese" 27, Ice Cave

Oct. 9-10, Bingen 21, between Mosier and Hood River 25, Albina. 26, Portland.

Nov 29, Bingen.

1901

Apr. 15, Bingen. 17, The Dalles 18, Rockland 19, The Dalles 23-24, Bingen

May 7, Bingen 10, Hood River 17, 23, 25, 28-29, Bingen

June 4, Bingen 8, The Dalles (No 1032); Bingen Mountain 11, Bingen. 17, Rockland 18, The Dalles 22, Bingen

July 9, Husum; Bingen 10, Bingen. 22, West of Wahtämm Lake; "Elfensee"; Butterfly Lake; "Aglethal" 23, Butterfly Lake 24, "Yei Creek"; Ice Cave. 26, Falcon Valley; "Eichberg"

Aug 10, Bingen 23, Portland, Albina. 24, Portland. 25, Castle Rock (Beacon Rock) 26, Hamilton Island 28, "Blauenensee" (No 2903) 29, Bingen.

Sept. 8-9, Bingen. 23, Ice Cave 24, "Schneebach"; Peters Prairie. 25, "Elfensee"; Butterfly Lake. 26, Trout Lake Valley. 29, Bingen.

Oct 1, Bingen. 8, Mt. Adams 9, "Wodanthal." 10, Mt. Adams. 11, "Höhlenklippe" 19, Bingen 29, Falcon Valley

Nov. 8, Bingen.

1902

- Jan 12-13, Bingen
 Mar 31, Bingen
 Apr 14, 22, Bingen
 May 7, 9, 17-18, 21, Bingen 23, Snowden, Bingen; Hawk Prairie 27, Bingen, Bingen Mountain; Hawk Prairie.
 June 3, Albina; Portland 12, 14, Falcon Valley 16, 20, 25, 30, Bingen,
 July 7-9, Bingen, Bingen Mountain 18, south side of Mt. Adams 20-21, Mt Adams 22, "Wieschalde (bei meinem Lageplatz)" 24, Falcon Valley 30-31, Bingen
 Aug 2, Portland; Albina 3, Albina 4, Portland, Albina 17, 19, 22, Bingen 26, The Dalles
 Sept 3, Bingen 9, "Yei Creek", "Seenberg" 10, "Seenberg", "Weidevee" 11, Butterfly Lake 12, Ice Cave 16, Peters Prairie 17, Ice Cave; Bingen 24, Bingen
 Oct 3, "Wodanthal" 4, Mt Adams 5, "Wieschalde" 20-21, Hood River 27, Bingen
 Nov 26, Portland; Albina

1903

- Apr 3, 13-14, 16, 20, 22, Bingen.
 May 9, 20, Bingen 29, Albina
 June 1, 5, 8, 10, 13, 20, 22, 25, 29-30, Bingen
 July 1-3, 7-11, 23, 25-26, Bingen 28, Bingen, Klickitat River (No 4593)
 Aug 4, Falcon Valley. 5, Falcon Valley; "Seggenbach" 6, "Seggenbach", "Donnerbach"; east slope of Mt Adams 7, Falcon Valley 8, Falcon Valley, Gilmer 11-13, 15-16, Bingen 20-22, Boring 23, Portland, Albina 27-29, Bingen
 Sept. 16, Falcon Valley 18, Mt Adams 19, "Rundwiese" 21, Mt Adams 22, "Wodanthal"; "Donnerthal" 23, "Wodanthal" 24, "Hohlenklippe", "Zaunkonigwiese" 25, Mt Adams 28, Husum 29, Bingen
 Oct 3, 18, Bingen 30, Klickitat River near Falcon Valley
 Nov 23, Bingen

1904

- Jan 17, Bingen
 Mar 21, Hood River
 Apr 3, 7, 9-10, 12-15, 18, 20, Bingen 28, Portland, Albina 30, Bingen
 May 1, 5, 9, 11-14, 18-19, 21, 25, Bingen.
 June 2, 3, 6, Bingen 7, The Dalles 8, Rockland 9, The Dalles 11-13, 18, Bingen. 20, Garfield 25, 26, Spangle 29, 31, Bingen
 July 2, Bingen 3, Rockland 6-7, 10, 17, 29, 30, Bingen
 Aug 1, Bingen 2, The Dalles 3, Rockland 12, 15-16, 20, Bingen 27, Mt Adams; near an abandoned sheep corral, 3000 ft, Klickitat River 29, Mt Adams 30, on volcanic sand and gravel, 2400 m, Mt Adams, east side of Mt Adams; "Krummelfelsen" 31, Mt Adams
 Sept 1, northeast side of Mt Adams; "Zwischen d nordlichen Kegel und . . Glätscher"; northwest of "Krummelberg." 2, near . . Glacier,

Mt. Adams, between Donner's and . glaciers, near a moraine on the n e. side of Mt. Adams 3-4, Mt Adams 5, near a glacier on the northwest side of Mt Adams 6, on a hillside near a small lake, northwest side of Mt Adams 7, "Wieschelde" 8, Mt Adams 9, Falcon Valley 10, Falcon Valley, Khikitat River 12, Falcon Valley 13, Falcon Valley, Bingen 14-18, 21, 23, Bingen 28, Falcon Valley 30, "Wodanthal"

Oct 1-3, "Wodanthal" 4, Bird Creek Island 5, Mt Adams 7, Falcon Valley 18, 22, 24, 25, Bingen.

Nov 3, 9, 13, 22, Bingen 30, Albina

Dec 8, 31, Bingen

1905

Mar. 1, 16-17, 25, Bingen

Apr 2, 5, 8, 11, 14, 17, 19, 20-22, 24-26, 28, 30, Bingen

May 1, 3, 6-7, 9, 13-20, 23, 26-28, 30-31, Bingen

June 1, Bingen 2-3, Rockland 4, The Dalles 6-9, 12, 14-15, 18, 24, 27, 29-30, Bingen

July 1, 3-8, 10, Bingen 15-18, Falcon Valley 19, 24-29, 31, Bingen

Aug 1-5, Bingen 10, Falcon Valley 12, "Gerstenwiese", swamp near Huckleberry Mt, Mt. Adams (No. 5247) 13, Butterfly Lake 14, "Schneebach", Trout Lake Valley 15, 17, Falcon Valley 18-20, Mt Adams 21, "Wodanthal" 22, Mt Adams 23, Falcon Valley. 24, Falcon Valley, Gilmer 25-26, 28-29, Bingen

Sept. 2, 5-7, 13, 16, Bingen 17, "Aschberg" 19-23, Mt Adams. 27, Husum 29, Bingen

Oct. 1, Bingen 4, Falcon Valley 5, Husum 15, Albina 22, 24, Bingen

Nov 2, Bingen

1906

Feb 27, Bingen

Apr 12-14, 19, 23, 25-26, 28, 30, Bingen.

May 3, 5-6, 10-14, 16-18, 20-21, 25-26, 28, Bingen

June 1-3, 7, 9, 13, 18-21, 24-25, 27-29, Bingen 30, Hood River, Ruthton; Menominee, Mitchell Point

July 3, 5-7, Bingen. 10, The Dalles 11, Rockland 13, Bingen. 18, Gilmer 19, Falcon Valley 22-25, Mt Adams 26, "Wodanthal" 27, "Donnerthal"; volcanic sand and gravel, east side of Mt Adams, 2400 m 20-29, "Wodanthal" 30, "Rotkegel" 31, "Wodanthal."

Aug. 1, "Wodanthal" 2-3, Mt Adams 4, "Donnerthal." 5, Mt Adams. 8, 10, Falcon Valley 11, Falcon Valley, Husum 12, Falcon Valley. 16, 17, 20, 29-31, Bingen

Sept 2, 7-8, 10, 17, 28, Bingen

Oct. 2-3, 5, Bingen. 7, Bingen, Larm River 2, 19, 23, Bingen

1907

Mar. 4, 30, Bingen

Apr. 1-4, 9, 12, 19, 22, 24-25, 26-28, 30, Bingen.

May 3-6, 9, 11-13, 15-16, 22-23, 25-26, Bingen 2-9, Boring. 31, Bingen.

June 5, 22, 25-28, Bingen.

July 1-4, 6-8, 10, 11-13, 15-19, 21-22, Bingen. 24, Gilmer. 25-27, 29-31, Falcon Valley.

Aug. 1, 3-4, Falcon Valley. 7, 9-12, Bingen. 15, Mt. Adams 16-17, "Wieschalde," 2300 m 18, 20-21, Mt. Adams. 23, "Wodanthal." 24, Mt. Adams. 25-27, "Wodanthal." 29, Bird Creek "Stromnetz"; Falcon Valley.

Sept. 1, 4-5, 7-8, 10, 16-17, 19, 22, Bingen. 24, Husum. 26, Falcon Valley. 28, Husum.

Oct. 3-4, Bingen. 6, Portland. 13, 31, Bingen.

Nov 15, Bingen

1908

Feb 22, Bingen

Apr. 1, Portland. 2, Vancouver. 22, 29, Bingen.

May 4, Hood River. 5, 18, 20, 26, Bingen. 27, Hood River. 29, Bingen. 30, Hood River. 31, Bingen.

June 4, Vancouver. 5, Portland; Albina. 10, Falcon Valley 14, 16, 18-19, 21-25, Bingen. 30, Falcon Valley.

July 1, 2, Falcon Valley 3, Falcon Valley; Larm River 5, 8, Bingen 12, 14, 16-17, 18, Falcon Valley. 19, Bingen. 20-21, Falcon Valley. 22, Gilmer. 23-24, 27-28, Bingen.

Aug. 1, 6, 8, Falcon Valley. 11-13, Bingen 16, 19, Falcon Valley 21, Mt. Adams. 22-24, "Wodanthal" 25, Mt. Adams. 26, "Wodanthal." 28-29, Mt. Adams 30, "Wodanthal" 31, Mt. Adams.

Sept. 1-2, 4, Mt Adams. 9, 13, Bingen 15, Falcon Valley 16, Husum. 25, Trout Lake Valley. 29, Falcon Valley.

Oct. 3, Falcon Valley 15, 17, Bingen.

Nov. 4, Bingen.

1909

Mar. 23-24, 27, Bingen

Apr 1, Bingen. 2, Larm River 6-9, 14, Bingen. 15, Hood. 21, The Dalles. 22, Columbus; Grand-Dalles (Rockland). 23-24, Columbus. 30, Bingen.

May 1, 3, Bingen. 5, Hood River, Mitchell Point 6-7, 11, Bingen. 12, Bingen; Vila. 14, Larm River. 16-20, Bingen 21, Bingen; Hood 22, Bingen.

June 1, Bingen 5, Gilmer. 7-12, 14-15, 17-18, Falcon Valley. 19-20, Gilmer. 21, Bingen 22, Ruthton; Mitchell Point; Hood River 30, Bingen.

July 2, Larm River; Bingen 8, Bingen 9, Hood; Cooks 11, Cooks. 20, Altoona 21, Sand Island; Chinook. 22, Chinook; Fort Columbia. 23, Chinook. 24, Altoona. 25, Albina; Portland.

Aug. 6, Gilmer 9-10, Mt Adams. 11-12, "Wodanthal." 13, Mt. Adams. 14, "Wodanthal." 15, Mt. Adams. 16, "Wodanthal." 17-18, Mt. Adams. 19-20, "Wodanthal." 23, 25, Falcon Valley.

Sept. 2-3, Bingen. 4, Larm River. 5, Larm River; Husum. 13, Bingen. 14, Hood River; Ruthton. 16, 23, Bingen. 25, Falcon Valley.

Oct. 2, 6, 10, Bingen.

Nov. 1-2, Bingen.

Dec 5, Bingen

1910

Feb 28, Bingen

Mar 14, Mitchell Point 17, Bingen

Apr 2, 10, 14, 16, 22, 28, Bingen

May 2, Bingen 8-12, Falcon Valley 13, Falcon Valley; Gilmer; Husum 16, 27, Bingen.

June 2-3, 5, 7, 9-11, 14, 17, 21, Bingen 25, Linnton, Portland. 26, Albina 28, Falcon Valley 30, Bingen

July 2, 7-8, 12, Bingen 16, Hood River, Ruthton, Mitchell Point. 20, 24, Bingen 25, Larm River 29, Bingen

Aug 8, Mt Adams 9, "Wodanthal" 10, Mt Adams 11, "Wodanthal" 12-15, Mt Adams 16-18, "Wodanthal" 19, Mt Adams 20, "Wodanthal" 21-22, Mt Adams 23, Falcon Valley 24, Gilmer 25-26, 28, Bingen

Sept 2-3, 5, 10, 12-13, 19, Bingen 28, Linnton 29, Portland.

Oct 9, Bingen

Nov 5, Prindle 6, 13, Bingen

Dec 11, 14, 25-26, Bingen.

1911

Jan. 5, Bingen

Mar 22, hills southeast of Goldendale

Apr 2, Goldendale 27-29, Bingen

May 1, 3-4, 6-8, 10, Bingen 22, 25-29, Falcon Valley

June 2, Bingen 6, Hood River 20-21, 23-25, Falcon Valley

July 1-8, Falcon Valley 9, Falcon Valley, Bingen 15, 17, 22-23, Falcon Valley 24, Husum 26, Bingen 27, Cooks, "Moosbach", Chenoweth 28, Bingen; Falcon Valley 29, Bingen

Aug 9, 13-14, 16, Falcon Valley 17, Gilmer 19-20, Bingen

Sept. 1, Portland 2, Linnton 7, 11-12, Bingen 19, Falcon Valley 21, Mt Adams 22, "Wodanthal" 23-24, Mt Adams 25, clearings along Bird Creek, 1000 m 26, Falcon Valley 28, Linnton [?] 29-30, Falcon Valley

Oct 5, 7, 15, 17, Bingen 20-21, Prindle

Nov. 2, Albina 3, Linnton 4, Mt Scott.

1912

Jan 4, 22, Bingen

Mar 21, Hood 30, Bingen

Apr 5, Ruthton, Mitchell Point 9-10, 12, 15, 17, 19, Bingen 29-30, Falcon Valley

May 1, Gilmer 6-8, Bingen 9, Prindle 10, Portland, Albina 11, Linnton 15-16, Bingen 29-31, Falcon Valley

June 1-2, Falcon Valley 4, Falcon Valley, Gilmer, Rattlesnake Creek 6-7, 10-12, 15, 18-19, 21-22, Bingen 28, Falcon Valley 30, Bingen.

July 7, Bingen 9, Albina. 10, Gresham, Siefer 11, Boring; Gresham, 12, Linnton 19, 23, Bingen 24, Hood River.

Aug 1-3, 5-7, 11, 15-17, 20, Bingen. 27-29, 31, Mt Adams

Sept. 5, 7, Falcon Valley. 9, Gilmer. 10-13, Bingen. 16, Larm River
19, 21-22, 28, 30, Bingen

Oct 1, Bingen. 4, Ruthton; Hood River. 6, Bingen. 13, Falcon Valley
24, 26, Bingen. 28, Prindle 31, Bingen.

Nov. 18-19, Bingen.

Dec. 6, 30, Bingen.

1913

Apr. 5-6, Falcon Valley. 14, Husum; "Eichberg" 16, 21, 23-24, 30,
Bingen

May 19, The Dalles. 20, 25, Bingen

June 4-8, Lathrop (Calif.). 11, Lompoc 12, Surf. 14-16, Lompoc.
17-18, Surf 20, Crystal Springs Lake 20-21, San Mateo 22-23, Crystal
Springs Lake. 28, San Bruno. 30, Crystal Springs Lake.

July 4, Berkeley; Fleming; Nobel; Stege 6, Mill Valley 7, Tennessee
Valley 8, Mill Valley 9, Tennessee Valley 12, Mt. Tamalpais; Mill
Valley. 13, Mill Valley 14, 16-17, Mt. Tamalpais; Laguna Valley 17-18,
Mill Valley 21, Suisun. 24, 26, 28, 30, Napa

Aug. 5, Lake Merced. 15, 25-26, 28, Bingen.

Sept 18, 27, Bingen.

Oct 28-29, Prindle

1914

Apr. 17, 18, 22, 24, 28-29, Bingen.

May 2, 7, 9-11, 14, 16, 18, 21, 25-26, Bingen.

June 1-4, 7-8, 15, 17, 19, 21-24, Bingen. 29-30, Falcon Valley.

July 2, 4, Falcon Valley. 5, 20-21, 28, 30-31, Bingen.

Aug. 7, Bingen 11, Linnton 13, 15, Bingen 28, Larm River.

Sept. 15, 19, 22, Bingen

Oct. 4-5, Falcon Valley. 16, 21, Bingen.

Nov. 5, 10-11, 17, Bingen.

Dec 1, Bingen.

1915

Apr. 8, 10, Bingen. 20, Falcon Valley. 26, Husum.

May 1, 3, 6, 8, 10-12, 14, 21, 29, Bingen

June 1, 15, 17, 22, Bingen. 29-30, Falcon Valley.

July 1, Falcon Valley. 2, Gilmer; Husum. 6, 12, 14-17, 27-28, Bingen.

Aug. 3, Bingen. 6, Larm River 8-9, 13-14, 16, Bingen. 18, 27, 30, Fal-
con Valley.

Sept. 1-3, 6-7, 14, 17, 22-23, Bingen.

Oct. 8, Bingen. 12, Hood River. 15-16, 19, Bingen. 27, Hood River.
28, Bingen; Prindle. 29, Prindle.

Dec. 1, Bingen

1916

Mar 29, Bingen.

Apr. 7, Linnton. 13, Falcon Valley. 24-27, Spangle.

May 2, Liberty Lake 3-4, Spokane Bridge. 7, Waverly. 8, Spokane

Bridge 9-11, Spangle 12, Latah Creek. 15, Spangle; Latah Creek 16-18, Spangle 23, 27, Bingen

June 1, Bingen 3, 5-6, Falcon Valley 14, Bingen. 26, Spangle 27, Spangle, Latah Creek east of Spangle 28-30, Spangle.

July 1, 4-5, Spangle 8, Spokane Bridge 9, Newman Lake. 10, north side of Mica Peak 11, Spokane Bridge. 14, Oakesdale 16-19, Spangle. 20, Latah Creek. 21-22, Spangle 24, Philleo Lake 25-26, Spangle. 27-28, Latah Creek 29, 31, Spangle.

Aug 1-2, Spangle 3, Philleo Lake, Spangle. 5, 9, Spangle. 10, Latah Creek, railroad between Spokane and Marshall 12, Spangle 17, Suksdorf's Gulch; Cottonwood Creek (Mont) 18, Wilsall 19, Suksdorf's Gulch 20, Bridger Pass; Jackrabbit Gulch 21-23, Suksdorf's Gulch. 23, Shields River 25, Shields River, Suksdorf's Gulch 26, Bridger Pass 28, Mahn Creek 31, Suksdorf's Gulch.

Sept 1, Cottonwood Creek; Wallrock Basin, Mahn Creek 2, Suksdorf's Gulch 5, Spangle 7, Latah Creek; Marshall, railroad between Marshall and Spokane 9, Spangle, Philleo Lake 14, Spokane Bridge 15, Liberty Lake; Mica Peak. 16, Spokane Bridge 18, 20, Spangle 21, Rosalia 22-23, Waverly. 27, Kamiak Butte. 29-30, Spangle.

Oct 8, Bingen

1917

Mar 3, 24, Bingen

Apr 7, Bingen. 27, Hood 29, Bingen.

May 8-9, 13, 18, 23, Bingen.

June 2, 15-16, 19, 22, Bingen

July 4, 24, Bingen.

Aug. 7, Bingen 17, Gresham 24, Albina.

Sept. 3, 11, 29, Bingen.

Oct. 16, 26, Bingen.

Nov. 6, Bingen. 7, Hood. 15, Vila 19, Menominee.

1918

Mar 31, Bingen.

Apr. 4, Bingen 12, Falcon Valley. 13, Gilmer; "Eichberg" 15, 27, 30, Bingen.

May 6, 11, Bingen. 20-23, Falcon Valley 24, Gilmer 27-28, 30-31, Bingen.

June 1, 3, 5-6, 10-12, 14, 16, Bingen 18, 20, Falcon Valley. 22, Husum; Gilmer 25-29, Bingen

July 1-5, 7, 10-11, 13, 17-18, 22-26, Bingen

Aug 1, 3, 8, 13-14, 24, 28, 30, Bingen

Sept. 6, 14-15, Bingen. 18-21, Falcon Valley. 28, Husum, Gilmer 30, Bingen.

Oct. 4, 7, 10, 18-19, Bingen.

1919

Mar. 24, Bingen 25, Vila. 31, Bingen

Apr. 7, Larm River. 8, 11, 14-15, Bingen. 17, Bingen; Hood River. 21,

23, 25, Falcon Valley 27, 29, Bingen

May 2, 7 Bingen 10, Bingen; Husum 13, 19-21, Bingen. 22, Larm River. 24, Hood River. 28, Bingen.

June 2, Bingen 5, Larm River 10, 13-14, Bingen 15, 17-22, 25, 27, Falcon Valley. 28, Bingen. 30, Husum, Bingen.

July 2, Bingen. 3, Larm River 6-8, Bingen 18, Boring, Anderson, Palmbiad 30, Bingen

Aug 1, 4, 7, Bingen 25, Odell

Sept. 1, 3, 10, 23-24, 26-27, Bingen

Oct 14, Falcon Valley. 18, 30, Bingen

1920

Mar 8, Bingen; Larm River. 9-11, 15, Bingen 16, Bingen; Hood 17, 22-24, 27, 30, Bingen

Apr 2, 4-6, Bingen. 10, Cape Horn 13-14, 18, Bingen 21, Ruthton; Mitchell Point 23-24, Bingen 26, Vila; Major Creek 27-28, Bingen. 29, Cape Horn

May 5, 7-8, 10-11, Bingen 13, Bingen; Vila 15-16, 18-22, Bingen 27, Cape Horn 29, Bingen.

June 1, Husum, "Eichberg"; Bingen 2, 4, 7-10, Bingen 11, Bingen, Larm River 12, 16, 21-22, 24, 26, Bingen 29, Cape Horn.

July 1, 3, 7, 9-10, 13-17, 19-20, 22-24, 26-31, Bingen

Aug. 2, Bingen; Hood 4, 7, 9-10, 12, 16-19, 22-27, Bingen

Sept 6, Falcon Valley 16, Mt Adams 18-19, Falcon Valley 25, Bingen; Hood 26, Bingen 27, Underwood, Larm River

Oct. 7-8, Falcon Valley 13, Hood River; Odell 16, Hood. 18, Bingen 19, Cape Horn

Nov. 6, Hood. 10, 19, Bingen.

1921

Jan 1, Bingen.

Mar 1, 5-6, Bingen 8, Prindle, Skamania 9, 12, Bingen. 18, Major Creek, Vila, Bingen 21, Ruthton, Mitchell Point 23, Hood, Drano 24-25, 28, 30, Bingen

Apr 1-2, Bingen 5, Ruthton, Sonny 6, 8, 11-12, Bingen 14, Sonny; Hood River, Mitchell Point, Bingen 15, 19, 23-26, Bingen

May 11, Hood, Dog Creek, Tunnel 2 (near Hood). 14, 19, 26-27, Bingen 28, Bingen, Sonny; Mitchell Point.

June 8-9, 12, Bingen 19, Spangle 20, Oakesdale 24, Suksdorf's Gulch (Mont) 26, Potter Basin 27, Suksdorf's Gulch, Jackrabbit Gulch; Rice Creek; Elk Ridge, north fork of Big Muddy Creek; Wallrock Basin 28-30, Suksdorf's Gulch

July 1, Suksdorf's Gulch, Jackrabbit Gulch. 4, Sedan. 5, Suksdorf's Gulch; Jackrabbit Gulch 6, 7, Suksdorf's Gulch 8, Wallrock Basin 9, Suksdorf's Gulch 10, Elk Ridge 12, Jackrabbit Gulch, Rice Creek, Wallrock Basin, source of the north fork of Big Muddy Creek 13-14, Suksdorf's Gulch 15, Chico Hot Spring; Watercress Spring; Trail Creek. 16, Wilsall; Cottonwood Creek, Flathead Creek 17, Flathead Creek 18-19,

Suksdorf's Gulch 20, Wallrock Basin 21, Cottonwood Creek 22, Bridger Pass 23, Suksdorf's Gulch 24, Shields River. 26, Cottonwood Creek 27, Suksdorf's Gulch 28-29, Suksdorf's Gulch, Wallrock Basin 30, Suksdorf's Gulch 31, Cottonwood Creek

Aug 1, Suksdorf's Gulch 2, Wallrock Basin 6, north fork of Big Muddy Creek, Rice Creek 8, Suksdorf's Gulch, Rice Creek, Wallrock Basin 9, Elk Ridge 10, Suksdorf's Gulch 11, Sedan; Flathead Creek 13, Wilsall 14, Suksdorf's Gulch 15, Wallrock Basin 17, Flathead Creek, near Wilsall, Shields River 20, Suksdorf's Gulch, Jackrabbit Gulch, Shields River 21, Horse Creek 22, Wallrock Basin 25, Suksdorf's Gulch 26, Wallrock Basin 28, Suksdorf's Gulch, Cottonwood Creek 30, Suksdorf's Gulch 31, Livingston

Sept 2, Cottonwood Creek 5, Wallrock Basin, Suksdorf's Gulch 8, Wallrock Basin 12-14, Suksdorf's Gulch 15, Flathead Creek 17, Flathead Creek, near Wilsall 19-20, Suksdorf's Gulch 22, Jackrabbit Gulch 25, Wallrock Basin, north fork of Big Muddy Creek 26-27, Suksdorf's Gulch 28, Livingston 30, Spangle

Oct 11, Bingen

Nov 8, Cape Horn 10, Prindle

1922

Mar 17, 19, 26, Bingen 31, Hood River, Ruthton, Mitchell Point

Apr 1, Vila 8, Bingen 11, Vila 14-15, 19-21, Bingen 24, Dog Creek 25, Bingen 26, Vila, Bingen 27, Vila 29-30, Bingen

May 2, 6, 8, 11, 13, 15-18, 22, 24-26, 28-30, Bingen

June 1, 5, Bingen 6, The Dalles 7, 11, 13, Bingen 15-20, Falcon Valley 22-25, 27, Bingen 29, Cape Horn 30, Bingen

July 3, 5, 9-11, 13-17, 19-21, 24, 26-29, Bingen

Aug 1-5, 8-11, Bingen 15, Dog Creek, Tunnel 5, near Hood, Cooks 17-19, 21, 25, Bingen 27, Falcon Valley 28, Falcon Valley, Bingen 30-31, Falcon Valley

Sept 1, Falcon Valley 5-6, 8, Mt Adams 15, Bingen 22, Odell 26-27, 29-30, Bingen

Oct 1, 8, Bingen 10, Skamania 11, Prindle 16-18, Falcon Valley 27, Bingen 28, Husum 30, Bingen

Nov 12, 28, 30, Bingen

1923

Feb 28, Bingen

Mar 2, 8, 11, 14, 17, 21, 23, 26-27, Bingen 28, Bingen, Vila 29, Bingen

Apr 3, 5, 7, 9, 11-13, 17, 21-22, 24, 26, Bingen 27, Bingen, Vila 28, 30, Bingen

May 2-6, 8-9, 11-12, 15, 17-19, 21-26, Bingen

June 2, 4, 7-10, 12-15, Bingen 18, Husum 19, 22-23, Bingen 26-28, Falcon Valley 30, Bingen

July 2, Dog Creek, Cooks 3, 8, 18-19, 23, 26-28, 30-31, Bingen

Aug 1-2, 4, 7, Bingen 11, Prindle, Cape Horn 14, 18, 22, 24, Bingen 27, Prindle

Sept. 1, 5-6, 8, Bingen. 18, Dog Creek 20, Bingen.
 Oct. 5, Bingen. 9, Falcon Valley. 13, Husum. 15, 23, Bingen 24, Hood.
 25, Bingen. 30, Prindle, Beacon Rock.
 Nov. 15, Bingen
 Dec 22, Bingen.

1924

Feb. 23-24, 29, Bingen.
 Mar. 2, Larm River. 3, Bingen 7-11, Vila. 12, Bingen 15, Bingen;
 Larm River 16, Bingen; Vila. 19, Wahkiella. 22, Vila. 31, Bingen.
 Apr 1, Mt Hamilton, Wahkiella 6, Bingen. 7, Mitchell Point; Bingen.
 10, Bingen. 12, Bingen; Larm River. 13, Bingen, Vila. 14, 18, Bingen.
 20, Trout Lake. 21, Cape Horn; Wahkiella. 22, 25, 30, Bingen.
 May 2-3, Bingen 4, Larm River. 6, 8-10, Bingen 12, Cooks, Dog
 Creek. 13, Bingen 14, Larm River, Underwood; Bingen. 16, Bingen;
 Vila 19, Bingen. 20, Vila; Bingen. 23, Bingen. 26, Prindle. 29, Bingen;
 Vila.
 June 2, Milwaukie. 3, Viento. 5, Bingen; Underwood 7-8, 10-12, 18,
 Bingen. 19, Prindle. 24-25, Bingen. 27, Vila; Bingen.
 July 2, 6, 8, Bingen. 12-14, Falcon Valley 16, Bingen. 17, Prindle.
 24, Dog Creek; Cooks. 26, 29, Vila; Bingen 30, Bingen.
 Aug. 1-10, Bingen 21, Falcon Valley 29, "Wodanthal" 30, Mt.
 Adams.
 Sept 6, 11, Bingen. 16, Prindle. 19, 22, 25, Bingen.
 Oct 18, Bingen. 22, Falcon Valley; Bingen 25, Bingen.
 Nov 16, Bingen.

1925

Feb 16, Bingen 24, Bingen; Vila 25, Bingen.
 Mar. 6, Bingen. 7, Bingen; Vila 18, 22, Bingen. 25, Bingen; Vila.
 30-31, Bingen
 Apr. 2, Skamania; Beacon Rock 6-8, Bingen. 14, Bingen; Vila. 17,
 Bingen. 27, Bingen; Vila 28-30, Bingen
 May 1-3, Bingen. 5, Bingen; Vila. 6-7, 9, 12, Bingen. 13, Bingen; Vila
 14, 16, 18, Bingen. 23, Elk Rock. 24, Beaver Creek. 25, Eagle Creek 26,
 Albina; Portland.
 June 1-2, Bingen. 5, Husum. 6, 8-11, Bingen. 15, Eagle Creek. 16,
 Linnton. 19, 23, 27. Bingen. 30, Trout Lake.
 July 1, Falcon Valley. 3, 17-18, 20, Bingen 23, Bingen; Vila. 25, 30,
 Bingen .
 Aug. 1, 4, 7, 9, 11, 15, Bingen. 16, Chenowith. 18, Vila. 21-22, 24,
 Bingen.
 Sept. 1-5, Mt. Adams. 14-15, 21, Bingen. 23, Eagle Creek. 25, 27,
 Bingen.
 Oct. 3, 10, Bingen. 14, Dog Creek; Cooks; Hood 24, 29, Bingen.
 Nov. 5, Dog Creek. 7, Bingen.
 Dec. 6, Pullman. 13, Albion. 20, 24, Pullman. 27, Staley.

1926

- Jan. 10, Pullman. 17, Albion.
 Mar. 7, 17-20, 22, 26, Bingen. 29, Prindle. 31, Bingen.
 Apr. 1, 13-14, 16, 19-20, 25, 27, 29-30, Bingen.
 May 3, 8, Bingen 10, Hood. 11-12, 14, Bingen. 20, Vila. 21, Hood.
 22, 25, 29, 31, Bingen.
 June 2, Bingen, Vila 4, Bingen 9, Hog Prairie. 10, Hood. 13, High
 Prairie; Goldendale. 15-17, 19, 26, 28-29, Bingen.
 July 8, Bingen. 9, Bingen; Hog Prairie 17, 22, 24, Bingen
 Aug. 1, 3, 19, 21-23, 25, 27-28, Bingen
 Sept. 1, Bingen 2, Collins; Dog Creek 7, 13, 29-30, Bingen
 Oct 2, Bingen; Major Creek. 4, Rock Creek, Stevenson. 10, 14-16,
 Bingen 21, Carson. 29, Mt Hamilton.
 Nov. 5, Vila.

1927

- Feb. 3, Bingen.
 Mar 6, 13, Bingen. 28, Dog Creek 30, Bingen
 Apr 10, Bingen. 13, Vila 20, Prindle 23, 26, 29, Bingen.
 May 7, 10, Bingen. 12, Vila; Swan Haman's Spur, Falcon Valley (No
 12294). 21, 25, 27, Bingen. 28, Mitchell Point. 30, Bingen, Skamania Co
 31, Bingen.
 June 3, Bingen. 4, Swan Haman's Spur 5, Major Creek. 6, 10, Bingen.
 12, Trout Lake Valley; Larm River, east of Trout Lake; Falcon Valley.
 13, 16, 18, 24, 27, Bingen.
 July 2, Bingen. 3, south and west sides of Mt Hood 8, Hood River.
 11-12, 15-16, Bingen. 19, Falcon Valley 23, 31, Bingen.
 Aug. 2, Bingen. 11, Hood. 12-13, 22, 24, 26, Bingen
 Sept. 2, 4, Bingen. 5, Bingen; Vila 7, Bingen. 8, Hood 12, 15-16,
 Bingen. 17, Husum; "Kressenberg" 26, Bingen
 Oct. 1, Bingen. 10, Bingen; Dog Creek 12, Bingen. 13, Cape Horn.
 23, 31, Bingen.
 Nov. 29, Bingen.

1928

- Mar. 3-4, 12, 18, 22, 28, Bingen.
 Apr. 3, 6, 8-9, 16-17, 19, 24, 27, Bingen.
 May 2, 12, 25, Bingen.
 June 1, 18-19, 27, Bingen. 28, Hood River. 30, Hood
 July 2, 3, 5, Bingen. 7, Pullman (No. 12388) 14, 16, 19, 27-28, 30-31,
 Bingen
 Aug 2, 4, Bingen. 10, Hood River 18, Bingen. 22, Eagle Creek. 27,
 Collins
 Sept. 8-9, 12, 14-15, Bingen 17, Cooks. 22, 30, Bingen.
 Oct. 2, 8, 10, 29, Bingen.

1929-32

Bingen.

IV. ENTITIES BASED ON THE SUKSDORF COLLECTIONS

A great number of new species and varieties based on Suksdorf's collections have been published. A list of them is presented below. Compilations of this kind are exceedingly difficult to make, because the sources to which one must go are almost unlimited, and because there is no practical way of conducting a systematic search of the literature. The present list, therefore, does not claim to be complete. It is possible that a search of all available botanical monographs will yield many more names.

Where the location of the type specimen is cited in the original publication, the herbarium is indicated by an appropriate abbreviation following the citation. A key to the abbreviations follows.

- (C) Herbarium of Columbia University
- (EG) Herbarium of the Rev. E. L. Greene.
- (G) Gray Herbarium of Harvard University
- (KM) Herbarium of Kenneth K. Mackenzie
- (ND) Herbarium of the University of Notre Dame
- (NY) Herbarium of the New York Botanical Garden
- (US) Herbarium of the U. S. National Museum
- (WSC) Herbarium of the State College of Washington

Types of species and varieties proposed by Suksdorf and based on specimens collected by him are presumed to be in the Suksdorf personal herbarium now at the State College of Washington.

- Achillea fusca* Rydberg in N. Am. Fl. 34 (3) 221 1916. Type: hillsides, Mt. Paddo, Sept. 28, 1893, No. 1606 (NY).
- Agrostis ampla* Hitchc. in U. S. D. A. Bur. Pl. Ind. Bull. 68 38 1905. Type: Rooster Rock, Ore., July 16, 1885, No. 135 (US).
- A. exarata* var. *stolonifera* Vasey in Bull. Torr. Bot. Club 13 54 1886. Type: bottomlands of the Columbia River at Bingen.
- A. humilis* Vasey in Bull. Torr. Bot. Club 10 21 1883. Type not designated. "Found by W. N. Suksdorf on Mt. Paddo, and by Mr. Howell on Mt. Adams."
- A. Schiedeana* var. *armata* Suksd. in Werdenda 1 1 1923. Type: wet meadows in Falcon Valley, July 27, 28, 1908, No. 6310.
- A. Thurberiana* Hitchc. in U. S. D. A. Bur. Pl. Ind. Bull. 68 23 1905. Type: wet places on mountains, Skamania Co., Aug. 28, 1890, No. 1021.
- Algera* Suksd. in Deutsche Bot. Monatss. 15. 145 1897. Type: *A. macrocera* (T. & G.) Suksd.
- A. barbata* Suksd. in Werdenda 1 44 1927. Type: Bingen Mountain, May 16, 1910, No. 7006.
- A. glabrior* Suksd., l. c. Type not designated: moist places at Bingen, April 22, May 16, 1910, No. 6959, April 28, May 5, 1925, No. 11844.

- A. Grayi* Suksd in Deutsche Bot. Monatss. 15: 147. 1897. Type not designated Klickitat Co., and in eastern Washington. Wasco Co., Ore.
- A. intermedia* Suksd in Werdenda 1: 44. 1927. Type not designated Bingen Mountain, May 16, 1910, No. 7007, April 30, May 6, 1925, No. 11845.
- A. macroptera* Suksd in Deutsche Bot. Monatss. 15: 146. 1897. Type not designated Klickitat Co., 1878, and later Wasco Co., Ore.
- A. macroptera* var. *obtusata* Suksd in Allg. Bot. Zeits. 12: 6. 1906. Type mountains not far from Bingen, April 21, to May 20, 1896, No. 2678.
- A. mamillata* Suksd in Deutsche Bot. Monatss. 15: 147. 1897. Type Simcoe Mts., 1884.
- A. rubens* Suksd, l. c. p. 146. Type Klickitat Co., 1880, and later.
- Amelanchier ephemerotricha* Suksd in Werdenda 1: 20. 1927. Type pine forest, meadow borders east of Laurel, Falcon Valley, May 23, June 20, Sept. 20, 1918, No. 10026.
- A. ephemerotricha* var. *siliculata* Suksd, l. c. p. 21. Type dense, moist forest, Bingen Mountain, June 9, Aug. 18, 1920, No. 10494.
- A. vestita* Suksd, l. c. p. 22. Type pine forest, meadow borders east of Laurel, Falcon Valley, May 23, June 20, Sept. 20, 1918, No. 10025.
- Angelica Canbyi* C. & R., Rev. N. A. Umbel 40. 1888. Type not designated Brandegee, 796½, Suksdorf, 638 and 763, low, grassy grounds along streams, Klickitat Co., near Mt. Adams, June 26, Aug., 1885, Howell, 706, Waldo, Ore.
- Amsinckia arenaria* Suksd in Deutsche Bot. Monatss. 18: 133. 1900. Type Bingen, May, 1891, No. 995.
- A. arvensis* Suksd in Werdenda 1: 32. 1927. Type stony mountain slopes and in fields at Bingen, May 3, 22, 1891, No. 2007.
- A. ciliata* Suksd, l. c. p. 87. Type not designated, but Suksdorf, No. 71, Lathrop, Cal., June 5, 1913, is first cited.
- A. densirugosa* Suksd, l. c. p. 111. Type not designated, but Suksdorf, No. 8718, Spangle, June 29, July 17, 1916, and No. 8851, Oakesdale, are first cited.
- A. fulgens* Suksd, l. c. p. 98. Type not designated, but Suksdorf, No. 131, seashore at Surf, June 12, 1913, is first cited.
- A. hispida* Suksd in Deutsche Bot. Monatss. 18: 133. 1900. Type mouth of the Hood River, May, 1894, No. 2316.
- A. incongruens* Suksd in Werdenda 1: 71. 1931. Type not designated, but Suksdorf, No. 192, Santa Ynez River north of Lompoc, June 15, 1913, is first cited.
- A. micrantha* Suksd in Deutsche Bot. Monatss. 18: 134. 1900. Type fields near dwellings or under solitary pine trees, Klickitat Co., June 8, 1882, and later, No. 390.
- A. pullata* Suksd in Werdenda 1: 67. 1931. Type Tennessee Valley, July 9, 1913, No. 481.
- A. retrorsa* Suksd in Deutsche Bot. Monatss. 18: 134. 1900. Type Bingen, May, 1891, No. 994.
- A. simplex* Suksd. in Werdenda 1: 33. 1927. Type railroad track in Lower Albina, May 26, 1925, No. 3336.

- A. washingtonensis* Suksd., l. c. p. 110. Type not designated: banks of the Columbia River at Bingen, May 27, 1896, No. 9520; 1895, No. 9518.
- Anaphalis margaritacea* var. *revoluta* Suksd. in Allg. Bot. Zeits. 12: 7. 1906. Type: in a small mountain valley, Skamania Co., Aug. 12, 1896, No. 2680.
- Antennaria latisquama* Piper in Bull. Torr. Bot. Club 28: 41. 1901. Type not designated: "collected in Klickitat Co., by Howell, No. 417, May, 1882, and by Suksdorf near Columbus, April 13, 1886."
- A. rhodantha* Suksd. in Allg. Bot. Zeits. 12: 6. 1906. Type: level, open places or clearings in woods, Skamania Co., elev. 1000 m. or more, June-Aug., 1897-1899, No. 2679
- Aphyllon arenosum* Suksd., l. c. p. 27. Type: dry, sandy ground near Bingen, July 22, 1899, No. 2781.
- A. inundatum* Suksd., l. c. Type. on the higher, mostly stony places on the bottomlands, Bingen, May, 1880, No. 205.
- A. minutum* Suksd. in Deutsche Bot. Monats. 18: 155. 1900. Type: on *Lithophragma parviflora* Nutt, Bingen, March 8, April, 1892, No. 2089.
- A. Sedi* Suksd., l. c. Type on *Sedum*, in shade among mosses on stony slopes near Chenoweth, June 16, 1892; also near Bingen, June 8, 1894, No. 2130.
- Aplopappus gummifera* Gdgr in Bull. Soc. Bot. France 65: 38. 1918. Type. Bingen, No. 5884.
- Apocynum denticulatum* Suksd. in Werdenda 1: 31. 1927. Type: on dry ground in a small canyon a few km north of Rockland, June 8, 1904, No. 4049.
- A. Suksdorfi* Greene in Pittonia 5: 65. 1902. Type: sandy banks of the Columbia River, No. 1522. (EG)
- Arabis atriflora* Suksd. in Deutsche Bot. Monats. 16: 211. 1898. Type. on stony mountains, Klickitat Co., west of the Klickitat River, May 17, 1892, No. 2105.
- A. atrorubens* Suksd. ex Greene in Erythea 1: 223. 1893. Type: Klickitat Co., May, 1892, No. 2105. (EG)
- A. Lemmoni* var. *padoensis* Rollins in Rhodora 43: 384. 1941. Type: rocks, Mt. Adams, Aug., 1885, No. 509. (G)
- A. Suksdorfi* Howell, Fl. N. W. Am. 1: 43. 1897. Type: dry, alluvial ridges, Mt. Adams, near the line of perpetual snow, Howell [Suksdorf was with Howell when the type was collected.]
- A. tenuis* Greene in Pittonia 4: 189. 1900. Type. on mountains, w. Klickitat Co., May, 1884, July, 1885, No. 15. (ND)
- Arenaria pusilla* Wats. in Proc. Am. Acad. 17: 367. 1882. Type not designated: "coll. on plains about Yreka, Cal., by Rev. E. L. Greene in April, 1876; at White Salmon, Wash. Terr., by W. N. Suksdorf, in 1880, and at The Dalles, Oregon, by J. & T. J. Howell, 1882."
- Arnica falconaria* Greene in Ottawa Nat. 23: 215. 1910. Type: open woods, Falcon Valley, June 27, 1892, No. 1617.
- A. hirticaulis* Rydb. in N. Am. Fl. 34: 349. 1927. Type: wet places near Cooks, Sept. 7, 1909, No. 6648. (NY)
- Artemisia Suksdorfi* Piper in Bull. Torr. Bot. Club 28: 42. 1901. Based on *A. vulgaris* var. *littoralis* Suksd. in Deutsche Bot. Monats. 18: 98. 1900.

- A. vulgaris* var. *littoralis* Suksd. in Deutsche Bot. Monatsz. 18: 98. 1900. Type: rocky seashore near Fairhaven, July 5, 1890, No. 980
- Aster brevibracteatus* Rydb. in Mem. N. Y. Bot. Gard. 1: 393. 1900. Type: low grounds and open woods, Spokane Co., Aug. 10, 1889, No. 928. (NY)
- A. campestris* ssp. *Suksdorfii* Piper in Contr. U. S. Nat. Herb. 11: 572. 1906. Type: collected on the Little Klickitat River, Oct. 5, 1882. (G)
- A. Engelmannii glaucescens* Gray, Syn. Fl. ed. 2. 1 (2): 200. 1886. Type: Mt. Paddo, Suksdorf (fide Piper in Contr. U. S. Nat. Herb. 11: 570. 1882.)
- A. Grayi* Suksd. in Werdenda 1: 41. 1927. Type not designated. creek bank, Falcon Valley, Sept. 21, 1885, No. 767; Aug. 22, 1926, No. 12062.
- A. humistratus* Gdgr. in Bull. Soc. Bot. France 65. 39. 1918. Type not designated, but Suksdorf, No. 663, Rockland, is first cited.
- A. occidentalis intermedius* Gray, Syn. Fl. ed. 2. 1 (2): 192. 1884. Type not designated, but Suksdorf, wet meadow, Falcon Valley, &c., is first cited
- A. Pickettianus* Suksd. in Werdenda 1: 42. 1927. Type: low, dry, level prairie among hills, s w of Spangle, Aug. 3, 1916, No. 8984
- Astragalus Suksdorfii* Howell in Erythraea 1: 111. 1893. Type: loose, volcanic soil near the base of Mt. Adams
- Atropis Suksdorfii* Beal, Grasses N. Am. 2: 574. 1896. Based on *Poa Suksdorfii* Vasey, in herb. Type: gravelly places near glaciers, Sept., No. 1116.
- Barbarea orthoceras* var. *dolichocarpa* Fernald in Rhodora 11: 140. 1909. Type: wet ground in woods, west Klickitat Co., May 19, and July, 1891, No. 2022.
- Bicuculla occidentalis* Rydb. in Bull. Torr. Bot. Club 29: 160. 1902. Type: shady hillsides in woods, west Klickitat Co., April 11, 1892, No. 1946. (C)
- Boisdewalia densiflora* var. *palescens* Suksd. in Deutsche Bot. Monatsz. 18: 88. 1900. Type: moist, stony places a few km. east of Bingen, Sept., 1893, Aug., 1894, No. 2254
- Brodiaea bicolor* Suksd. in West Am. Sci. 14: 1. 1902. Based on *B. Howellii* Wats. var. *lilacina* Hort. Type: level, often moist places, sometimes among bushes, Falcon Valley, June, 1881, 1898, No. 249
- Bromus ciliatus* var. *glaberrimus* Suksd. in Deutsche Bot. Monatsz. 19: 93. 1901. Type: woods, Skamania Co., July 22, 1894, No. 2335.
- B. laevipes* Shear in U. S. D. A. Div. Agrost. Bull. 23: 45. 1900. Type: Columbia River, west Klickitat Co., No. 178.
- B. Suksdorfii* Vasey in Bot. Gaz. 10: 223. 1885. Type: Mt. Adams, 1883, No. 74.
- Cacaliopsis nardosmia* var. *glabrata* Piper in Bull. Torr. Bot. Club 29: 222. 1902. Type: Klickitat Co., 1883. (G)
- Calamagrostis anomala* Suksd. in Allg. Bot. Zeits. 12: 43. 1906. Type: Mt. Adams, elev. 2200 m, Sept. 25, 1903, No. 2824.
- C. blanda* Beal, Grasses N. Am. 2: 349. 1896. Based on *C. pallida* Vasey & Scribn. in Contr. U. S. Nat. Herb. 3: 79. 1892.
- C. inaequalis* var. *cuprea* Kearney in U. S. D. A. Div. Agrost. Bull. 11: 37. 1898. Type: Falcon Valley, July 9, 18, 1886, No. 910.

- C. lactea* Suksd. ex Beal, Grasses N. Am. 2 346. 1896. Based on *Deyeuxia lactea* Suksd in herb Type banks of the north fork of the Nooksack River, near Mt Baker, No 1022.
- C. pallida* Vasey & Scribn in Contr. U S Nat. Herb 3 79 1892. Type Washington, 1883 (Type in Herb Scribn. fide Beal, Grasses N. Am 2 349 1896)
- Calochortus longebarbatus* Wats in Proc Am. Acad 17 381. 1882 Type low, grassy grounds, Falcon Valley, July, 1881, No. 64
- Camassia Suksdorfii* Greenm in Bot. Gaz 34 307 1902 Type not designated wet meadows, Falcon Valley, June-July, 1883, No 251; July, 1880, No 509
- Cordamine bracteata* (O E Schulz) Suksd in Rhodora 20 198. 1918 Based on *C. hirsuta* ssp *oligosperma* var. *bracteata* O E. Schulz in Engl Bot. Jahrb 32 470 1903
- C. hirsuta* ssp *oligosperma* var *bracteata* O. E. Schulz in Engl Bot Jahrb 32: 470 1903 Type west Klickitat Co, 1885
- C. lucens* (G S Torr) Suksd in Rhodora 20 198. 1918 Based on *C. oligosperma* var *lucens* G S Torr in Rhodora 17 157 1915
- C. oligosperma* var *lucens* G S Torr in Rhodora 17 157 1915 Type damp places, Bingen, Apr 10, 12, 1912, No. 7452 (G)
- Carex aperta* f *concinna* Holm in Am Jour Sci. 5th ser 2 290 1921 Type. border of a pond, alt 2000 m, Mt Adams.
- C. aperta* f *hydroessa* Holm, l c Type bottomlands, Columbia River, after high water
- C. aperta* f *mimetica* Holm, l c Type among boulders 5 km west of Bingen
- C. Constanceana* Stacey in Leaflet W. Bot. 2 (8) 123 1938 Type rocky slope, alt 2000 m, Wodan's Vale, Aug 6, 1909, No 6864.
- C. egregia* Mack in Bull Torr. Bot Club 42 414. 1915. Type Falcon Valley, July 15, 1905, No 5181. (KM)
- C. eurycarpa* Holm in Am Jour Sci 4th ser 20 303 1905 Type Falcon Valley, June, 1886, Nos 1284 and 2962
- C. nebraskensis* var *cruciformis* Suksd in Werdenda 1 5 1923 Type wet meadow, Falcon Valley, June 22, 1919, No 10249
- C. nigricans* f *feminea* A Kneucker in Allg Bot Zeits 17 90 1911 Type: volcanic soil, Mt Adams, elev 2000 m, Aug 17, 1900
- C. oxycarpa* Holm in Am Jour Sci 4th ser 20 303 1905 Type meadows near Columbia River, west Klickitat Co, June, 1885, No. 816
- C. paddoensis* Suksd in Allg Bot Zeits 12 43. 1906 Type on rocks near glaciers, elev. 2500-3000 m, Mt Adams, Aug. 13, 1897, No. 1296.
- C. spectabilis* f *alpina* Holm in Am Jour Sci 4th ser 49 202 1920 Co-type. Mt Adams, elev 2300 m.
- C. spectabilis* f *chrysantha* Holm, l c Type Mt Adams, elev 2000 m
- C. spectabilis* var *gekida* Holm, l c Co-type Mt Adams, elev 2000 m
- C. Suksdorfii* Kük. in Fedde, Repert Sp Nov 16 434 1920 Type Mt Paddo, No. 7383
- C. Suksdorfii* var *ovalis* Kük., l c p. 435 Type not designated. Nos. 4248, 4249, and 5259

- C. tenacissima* Suksd in Werdenda 1 5. 1923 Type rocky bank of the White Salmon River, about 7 km northwest of Bingen, May 22, June 5, July 3, 1919, No 10209.
- Castilleja miniata* var *alpina* Suksd in Deutsche Bot. Monats 18 155 1900. Based on *C. oreopola* Greenm in Bot Gaz 25 264 1898
- C. oreopola* Greenm in Bot Gaz 25 264 1898 Type not designated, but Suksdorf, No 2046, damp ground on Mt. Adams, elev 1840-2150 m, Aug-Sept, 1891, is first cited
- C. pallida* var *camporum* Greenm, l c p 265 Type not designated, but Suksdorf, No 423, low prairies, Spokane Co, June, 1884, is first cited.
- C. pallida* var *lutescens* Greenm, l c Type not designated, but Suksdorf, No 424, prairies, Spokane Co, June, 1884, is first cited.
- C. Suksdorfii* Gray in Proc. Am Acad 22 311 1887 Type alpine meadows and springs, Mt Adams, elev 6000-7000 ft, 1885, 1886
- Centaurea Cyanus* var *denudata* Suksd in Werdenda 1 43 1927 Type Bingen, June 8-21, 1920, No 10490
- Centaureum Muhlenbergii* var. *albiflorum* Suksd, l c p 30 Type in a moist situation near Latah Creek, s.e. of Spangle, July 20, 1916, No 8903
- Cerastium acutatum* Suksd in Werdenda 1 9 1923 Type on wet or moist places at Bingen, April 3, 1909, No 6522
- Cheilanthes occidentalis* Wats in Proc Am Acad 23 261 1888 Type not designated "Wash Terr (Walla Walla, Lyall; Klickitat Co, Suksdorf); Oregon (Wasco Co, Suksdorf) and northern Nevada (near Carson City, Watson) Resembling dwarf states of *Erysimum pumilum*, to which it has been referred in the want of fruiting specimens, which are first collected by Mr Suksdorf."
- Claytonia cupulata* Suksd in Werdenda 1 11 1923 Type dry places at Bingen, Apr 14, 1919, No 10169
- C. interrupta* Suksd, l c Based on *Montia interrupta* Suksd in Deutsche Bot. Monats 16. 222 1898.
- C. latifolia* Suksd, l c Based on *Montia latifolia* Suksd in Deutsche Bot. Monats 16 222 1898.
- C. parviflora* var *adsurgens* Suksd, l c Based on *Montia parviflora* var *adsurgens* Suksd in Deutsche Bot Monats 16 221 1898
- C. parviflora* var *hydrophila* Suksd, l c Based on *Montia parviflora* var *hydrophila* Suksd in Deutsche Bot. Monats 16 221 1898
- C. parviflora* var. *latior* Suksd, l c Type bottomlands, Bingen, Apr 16, 1892.
- C. parviflora* var *rupestris* Suksd, l c Based on *Montia parviflora* var. *rupestris* Suksd in Deutsche Bot Monats 16 221 1898
- C. parviflora* var *sparsiflora* Suksd, l c Type shaded rocks, riverbank, Bingen, May 5, 1904, Apr. 21, 1906, No 4022
- C. rupicola* Suksd, l c p 12 Type not designated rocks or stony places, Skamania Co; Chiquash Mts, Aug 6, 1899, No 3946, Prindle, May 9, 1912, No 7489
- C. spathulata* var *disciformis* Suksd, l c p 10 Based on *Montia spathulata* var. *disciformis* Suksd in Deutsche Bot. Monats 16 222 1898.

- C. washingtoniana* Suksd., l.c. Based on *Montia washingtoniana* Suksd. in Deutsche Bot. Monatss 16. 220. 1898.
- Clematis* Suksdorfii Robinson in Gray, Syn. Fl. 1: 4. 1895 Type Klickitat River, July 15, 1881 (in flower) and Sept. 11, 1881 (in fruit), No. 1.
- Corallorhiza hortensis* Suksd. in Werdenda 1: 18. 1927 Type: Bingen, April 30, 1924, No 11647.
- C. Leimbachiana* Suksd in Allg. Bot. Zeits 12: 42. 1906. Type: in deep woods at Bingen, July 2, Aug. 4, 1896, No 2811.
- C. multiflora* var. *sulphurea* Suksd., l.c. Type: wooded mountains near Bingen, Aug 4, 1896, July 19, 1897, No 2810.
- Crataegus Douglasii* var. *Suksdorfii* Sarg in Bot. Gaz. 44: 65 1907. Type not designated: banks of the Columbia River and borders of bottomlands, west Klickitat Co., 1905-1906, Nos. 4034, 4919, 5026, 5031, 5040.
- Cuscuta salina* var. *acuminata* Yuncker in Univ. Ill. Biol. Monog 6 162. 1921 Type: on an island of a mountain lake, Skamania Co., No 1487 (US)
- C. Suksdorfii* Yuncker in Mem. Torr. Bot. Club 18: 167. 1932 Type: on an island of a mountain lake, Skamania Co., No. 1487 (US)
- Cyperus washingtonensis* Gdgr in Bull. Soc. Bot. France 66. 296 1919 Type: Bingen, No 587
- Cyrtopodium fasciculatum* Kell. ex Wats. in Proc. Am. Acad. 17: 380. 1882 Type not designated "Coll. by W. N. Suksdorf on the White Salmon River, Wash. Terr., above the falls, in May, 1880; by Mrs. Austin in May, 1881, near Prattville, Plumas Co., Calif., and at some time previous by Mrs. Bradley, probably in the mountains of Del Norte Co."
- Delphinium willamettense* Suksd in Deutsche Bot. Monatss 16 210 1898 Type: moist places, often in brush, near Milwaukie, on the Willamette River in Ore., July 16, 1893, No. 2225.
- Descurainia Rydbergii* var. *eglandulosa* Schulz in Pflanzenreich IV (105) 320 1924. Type: Bingen, May 25, 1885, No. 512.
- Dryocallis lactea* Suksd. in Deutsche Bot. Monatss. 19: 92. 1901 Based on *Calamagrostis lactea* Beal, Grasses N. Am. 2 346. 1896. Type: shady, wet situations on the banks of the Nooksack River near Mt. Baker, Whatcom Co., July 27, 1890.
- D. Suksdorfii* Scribn. in Bull. Torr. Bot. Club 15. 9 1888. Type. Washington, 1882, No. 26 (fide Hitchc., Grasses U. S., p. 823. 1935).
- Dodecatheon Curickii* var. *album* Suksd. in Werdenda 1: 30 1927. Type: dry, mostly stony places which are moist or wet in spring, at Spangle, May 10, 1916, No. 8601
- D. Hendersonii* var. *leptophyllum* Suksd. in Deutsche Bot. Monatss 18 132. 1900 Type. meadow borders in Falcon Valley, May, June, 1893, No. 2202.
- D. tetrandrum* Suksd. ex Greene in Erythraea 3: 40. 1895. Type not designated: "Mountains apparently throughout eastern Washington and Oregon, collected by Suksdorf, Curick, and on Drew's Creek, in s.e. Oregon, by Mrs. R. M. Austin." Suksdorf in Deutsche Bot. Monatss. 18: 98. 1900. Type. moist or swampy mountain meadows on Mt. Adams and south-westward, elev. 1500-2200 m., June 14-Oct., 1890, No 988.

- Downingia brachypetala* Gdgr in Bull. Soc. Bot. France 65 55. 1918 Type: Falcon Valley, No 2762
- Drymocallis albidia* Rydb. in N Am. Fl 22. 375 1908 Type: damp or shady places at Bingen, 1893, No 2209 (NY)
- D. amplifolia* Rydb., l. c p 373. Type near the Columbia River in west Klickitat Co., 1894, No 1761 (NY)
- Eatonia annua* Suksd. in West Am Sci 15 50 1906 Type borders of pools which soon dry up, The Dalles, June 8, 1897, No 1553
- Eleocharis Suksdorfiana* Beauv in Bull. Soc. Bot. Genève II (13): 267. 1922 Type Skamania Co., No 2237
- Elymus asicularis* Suksd in Werdenda 1. 3 1923 Type garden, Bingen, June 15, 1915, Aug 4, 1922, No 7861, offspring of No. 723, originally collected at Portland and transplanted to the author's garden.
- E. edentatus* Suksd., l. c p 4 Type open woods, Bingen, June 6, 25, 1918, No. 10057.
- E. flavescens* Scribn & Smith in U S D A Div Agrost. Bull 8: 8. 1897 Type: Columbus, June 11, 1886, No 916.
- Elmera* Rydb in N Am Fl 22 97 1905 Type *Heuchera racemosa* Wats.
- Epilobium adscendens* var *canescens* Suksd in Deutsche Bot. Monats. 18. 87. 1900 Type Falcon Valley, June 27, 1892, No 2147.
- E. altissimum* Suksd in Werdenda 1 28 1927 Type not designated dry, level places, Bingen, Aug 24, 1925, No. 11907; Sept. 15, 1922, and Sept. 8, 1923, No 11027
- E. apricum* Suksd. in West Am Sci 11 77 1901 Type dry slopes near Bingen, Sept and Oct, 1898, No 2640.
- E. fasciculatum* Suksd., l. c Type. level, moist places, Falcon Valley, Aug. 22, Sept., 1896, No 2641.
- E. foliosum* var *glabrum* Suksd in Deutsche Bot. Monats. 18. 87 1900. Type: moist, stony places, rare, west Klickitat Co., May 17, 1892, No 2108.
- E. griseum* Suksd in Werdenda 1 28 1927. Type not designated wet or moist places on rocky bank of Big White Salmon River, a few km. above its mouth, July 3, 1919, No 10272; Bingen, July 8, Aug 1, 10, 1924, Aug 1, Nov 7, 1925, No 11751; on the Big White Salmon River above Husum, July 13, 1891, No. 2045, Big White Salmon River, July 2, 1909, No. 6635
- E. jucundum* var *viridifolium* Suksd., l. c p 29 Type low, often hard ground, Bingen, Sept. 14, 1904, No. 4342
- E. minutum* var. *canescens* Suksd. in Deutsche Bot Monats. 18. 87. 1900. Type: Falcon Valley, June 27, 1892, No 2147.
- E. minutum* var. *glabrum* Suksd., l. c Type moist, stony places, rare, west Klickitat Co., May 17, 1892, No. 2108.
- E. praecox* Suksd. in Werdenda 1 27 1927. Type garden, Bingen, May-Nov., 1920 to 1926, No 10594, offspring of plant collected along the riverbank.
- E. pulchrum* Suksd., l. c p 26. Type washes in steep, stony and rocky south-facing slopes, Wodan's Vale, July 26, 1906, No. 5741
- E. pulchrum* var. *albiflorum* Suksd., l. c p. 27 Type a white-flowered plant grown from seeds of *E. pulchrum* Suksd., No. 5741.

- Equisetum hyemale* var. *Suksdorfii* A A Eaton in Fern Bull 11 110 1903
Type high bottomland on the Columbia River at Bingen, Sept 3, 1902, No 2161.
- E. saxicola* Suksd in Deutsche Bot Monatss 19 92 1901 Type. rocky island in a small mountain lake (Butterfly Lake), Skamania Co, Aug 17, 1892, No 2163
- Erigeron acris debilis* Gray, Syn Fl ed 2 1 (2) 220 1884 Type not designated: Mt. Adams, Suksdorf, Howell and other collectors and localities are cited
- E. Suksdorfii* Greene in Leaflet Bot. Obs 2 203 1912 Type at 5000 ft, Mt. Adams, Aug 5, 1885, No 2412 (EG)
- Eriogonum niveum* var. *Suksdorfii* Gdgr in Bull Soc. Royale Bot. Belg 42 192 1906 Type woods at Cheney, No 944.
- E. tenue* Small in Bull Torr Bot. Club 25 41 1898 Type Columbia River, west Klickitat Co, May 15, 1884, No. 694
- Eschscholtzia columbiana* Greene in Pittonia 5 231 1905. Type Columbia River, summer, 1881 (EG)
- Eucephalus glaucescens* Greene in Pittonia 3 56. 1896 Type Mt. Adams, No 118 (EG)
- E. serrulatus* Greene, l c p 55 Type Mt Adams, No 1563
- Euthamia linearifolia* Gdgr in Bull Soc Bot. France 65 41 1918 Type Bingen, Sept 7, 1907, No 6108
- Ferula purpurea* Wats in Proc Am Acad 21 453 1886 Type not designated "on rocky hillsides near the lower Columbia River, in Klickitat Co and the Simcoe Mts., Wash Terr, collected by W N Suksdorf and the Howell brothers, and at Hood River in Oregon by Mrs P. G Barrett"
- Festuca confusa* Piper in Contr U S Nat Herb 10 13 1906 Type west Klickitat Co, No 1140.
- F. dives* Suksd in Werdenda 1 3 1923 Type sandy riverbank, Bingen, May 26, 1908, May 17, 1909, No 6153
- F. microstachys* var. *subappressa* Suksd, l c p. 2 Type steep mountain slope, Bingen, June 25, 1908, May 28, June 13, 1919, No. 6236
- F. scabrella* var. *major* Vasey in Contr U S Nat Herb 1 278. 1893 Type prairies, Spokane Co, 1884, No 118
- F. subbiflora* Suksd. in Werdenda 1 2 1923 Type steep, sunny slopes, Bingen, May 20, 29, 1908
- F. Suksdorfii* Piper ex Suksd, l c Type not designated dry mountainsides, Bingen, May 17, 18, 1906, No 5604, and May 31, 1918, No 10044
- Fragaria Suksdorfii* Rydb in N Am. Fl. 22 361. 1908. Type dry grounds in open woods, Falcon Valley, June 2, 28, 1883, No 486 (NY)
- Frasera nitida* var. *albida* Suksd in Werdenda 1 30. 1927 Type mountains east of Husum, June 18, 1923, No 11458.
- Fritillaria oreadoxa* Gdgr in Bull Soc Bot France 66 291 1919 Type dry plains and steep mountainside at Bingen, April 3, 4, July 6, 1907, No 5917.
- Gaultheria ovalifolia* Gray in Proc Am Acad 19 85 1884 Type not designated in the paper, but in a letter to Suksdorf (undated), Dr Gray wrote, "No. 154 -- Well, as it has seemed to me, these two forms of *Gaultheria*



1 WILHELM N. SAKSDORF AT MIDDLE AGE
Photograph by Gifford, The Dalles, Oregon, between 1898 and 1910



2. WILHELM N. SAKSDORI AT ABOUT 75 YEARS
Photograph taken at the State College of Washington about 1925

must be distinct. Your good specimens, with flowers and fruit, go far to settle it"

Gayophytum pumilum S Wats in Proc Am Acad 18 193 1883 Type not designated "from San Bernardino Co, Calif, to Wash Terr, collected by Dr Torrey, Kellogg, Lemmon, Parry, Rattan and Suksdorf"

Gentiana myrsinites Gdgr in Bull Soc Bot France 65 60 1918 Type Mt. Adams, 6000 ft, No 6057

Geranium nemorale Suksd in Deutsche Bot Monatss 16 222 1898 Type west Klickitat Co, June 10, 1891, and earlier (1880), No 2028

G viscosissimum var *album* Suksd in Werdenda 1 24 1927 Type north of Spangle, June 29, 1916, No 8710

Gilia gracilis var *elator* Suksd in Deutsche Bot Monatss 18 132 1900 Type open places in woods, west Klickitat Co, May 27, 1892, No 2114

G gracilis var *pratensis* Suksd, l c Type meadows and meadow borders, Falcon Valley, May 27, 1892, and earlier, No 1508

G Klickitatensis Suksd, l c p 133 Type stony, sterile places in the vicinity of the mouth of the Klickitat River, May 27, June, 1890, No 991 Suksd ex Piper in Bull Torr Bot Club 28 43 1901

G longisejala Gdgr in Bull Soc Bot France 65 59 1918 Type not designated Skamania Co, No 2314, Bingen, No 5144

Gnaphalium pannosum Gdgr, l c p 42 Type not designated, but Suksdorf, No 1580, Klickitat Co, is first cited

Godeha bingensis Suksd in Deutsche Bot Monatss 18 88 1900 Type dry places, Bingen, July 4, 1892, and earlier, No 86

Harpaecarpus exiguus var *macrocephalus* Suksd, l c p 97 Type dry ground, Bingen, June 18, 1922, and earlier, No 181

H longipes Gdgr in Bull Soc Bot France 65 43 1918. Type Bingen, No 5872. *H Suksdorfii* Gdgr, l c Type. Bingen, No 5637

Heuchera chlorantha Piper in Contr U S Nat Herb 16 206 1913 Type low, wet ground in woods, Falcon Valley, June 28, 1892, No 1739

H racemosa Wats in Proc Am Acad 20 365 1885 Type cliffs, Mt Adams, elev 7000-8000 ft, July, 1883, No 123

H Suksdorfii Rydb in N Am Fl 22 116 1905 Type crevices of rocks, Falcon Valley, June 28, 1882 (C)

Hieracium leptopodanthum Gdgr in Bull Soc Bot France 65 51. 1918 Type Falcon Valley, No 6023

H paddoense Gdgr, l c Type Mt. Paddo, No 2255

H Suksdorfii Gdgr, l c Type Falcon Valley, No 5890

H washingtonense Gdgr, l c Type Falcon Valley, No 377

Hulsea vulcanica Gdgr, l c p 45 Type volcanic scoria, Mt. Adams, alt. 2300 m. No 5775

Hydastylus borealis Bickn in Bull Torr Bot Club 27 378 1900 Type not designated, but Suksdorf, Whatcom Co, July 7, (flowers), Aug (fruit), is first cited

Ilysanthes gratioides var. *depressa* Suksd in West Am Sci 15 61 1906 Type. low, wet places, riverbank, Bingen, Nov, 1892, and 1904, No 2192

- Impatiens occidentalis* Rydb in N. A. Fl. 25: 94. 1910. Type. along streams in damp woods, north fork of the Nooksack River, Whatcom Co., 1890, No. 960. (NY)
- Isoetes minima* A. A. Eaton in Fern Bull. 6. 30 1898. Type: damp places in prairies near Waverly, No 2365.
- J. Suksdorfii* Baker, Handb Fern Allies 132 1887 Type springs and damp meadows, west Klickitat Co., No. 836.
- Juncus badius* Suksd in Deutsche Bot. Monatss. 19 92 1901 Type: moist or wet ground, Falcon Valley, June 25, 1892, No 2144
- J. balticus* var *condensatus* Suksd in Werdenda 1 6. 1923 Type wet meadow, Falcon Valley, July 17, 1905, July 1, 1908, No 5199.
- J. Meriensianus* var. *filifolius* Suksd in Deutsche Bot. Monatss 19 92. 1901 Type. shore of a small mountain lake, Skamania Co., July 11, 1891, No. 2042
- J. orthophyllus* var' *congestus* Suksd in Werdenda 1 6 1923 Type meadows, Falcon Valley, July 19, 1908, No. 6301.
- J. Suksdorfii* Rydb in Bull. Torr. Bot. Club 26 541. 1899 Type not designated Falcon Valley, 1883, No 217, 1885, No. 680; Spangle, 1884, No 464 (G)
- Krynitzkia Suksdorfii* Greenm in Bot Gaz 40 146 1905 Type not designated dry hillsides near Rockland, April 18, 1901 (flowers), June 8, 1904 (fruits), No 1495; dry hillsides near Dalles City, April 17, 1901 (flowers), No. 2346. [Dalles City (The Dalles), Wasco Co., was erroneously cited as Dallas City] (G)
- Lappula saxatilis* Piper in Bull. Torr. Bot. Club 29 541. 1902 Type rocky sides of canyons, Klickitat River, June 12, 1885, No. 592 (G)
- Lasthenia minima* Suksd. in Allg. Bot. Zeits. 12 7. 1906; West Am. Sci. 15 50. 1906. Type wet ditches near The Dalles, May 4, 1898, No. 2683
- Lewisia pygmaea* var *aridorum* Bartl in Bot Gaz 44 303 1907 Type dry, bare places in meadows, Mt. Adams, Yakima Co., No 5725.
- Lithophragma tenella* var *florida* Suksd. in West. Am. Sci. 15 61. 1906. Type. Bingen, April, 1904, No. 4011.
- L. tenella* var *ramulosa* Suksd., l c Type on a rock in the river at Bingen, April, 1898-1904, No 4013
- Listera retusa* Suksd in Deutsche Bot. Monatss 18 155. 1900 Based on *L. caurina* Piper in Erythea 6: 42. 1898, in part Type: scattered on moist or somewhat dry ground in deep woods, Skamania Co., July, 1891, and 1894, No. 2326.
- Lomatium flavum* Suksd. in Allg. Bot. Zeits. 12 6. 1906. Type: level places or stony slopes near Bingen, Apr 6, June 22, 1901, and earlier, May and June, 1883, No. 506.
- L. robustus* C. & R. in Contr. U. S. Nat. Herb. 7: 228. 1900. Based on *Pseudanum internatum robustus* C. & R. in Contr. U. S. Nat. Herb. 3 228. 1895. Type: low grounds, w. Klickitat Co., May-July, 1883, No. 502. (US)
- Lonicera cauriana* Fern. in Rhodora 27: 10. 1925. Type: alpine meadows, Mt. Adams, June 29, Aug., 1885, No. 559. (G)

- L. Suksdorfii* Gdgr. in Bull. Soc. Bot. France 65: 33. 1918 Type: Bingen, No. 5678.
- Lupinus agmus* Gdgr. in Bull. Soc. Bot. France 60: 461. 1913 Type: woods near Bingen, No. 5672
- L. amphibius* Suksd. in Werdenda 1: 13. 1923 Type not designated among stones on a small rocky island in the Columbia River at Bingen, Sept. 19, 1910, No. 7154, Aug. 18, 1923, No. 11532.
- L. bingenensis* Suksd., l. c. p. 12 Type among scattered trees on a dry hill near Bingen, April 24, June 12, 1905, No. 5036
- L. bingenensis* var. *albus* Suksd. in Werdenda 1: 24. 1927 Type. No. 10191.
- L. bingenensis* var. *roseus* Suksd., l. c. Type No. 11855
- L. strigosus* Gdgr. in Bull. Soc. Bot. France 60: 461. 1913 Type sand at Bingen, No. 5928
- L. Suksdorfii* Robinson ex Piper in Contr. U. S. Nat. Herb. 11: 355. 1906. Type not designated. Columbia River, west Klickitat Co., May 3 (flowers), June (fruit), 1883, No. 110, same locality, mountains, May 2 (flowers), June (fruit), 1883, No. 109; same locality, April 24 (flowers), June (fruit), 1886.
- Madia filipes* var. *macrocephala* Suksd. in Deutsche Bot. Monatsz. 18: 97. 1900 Type dry ground near Bingen, June 18, 1892, No. 131
- Melica fugax* var. *inexpansa* Suksd. in Werdenda 1: 1. 1923. Type open woods, Falcon Valley, May 12, 1910, No. 6989
- M. fugax* subsp. *madophylla* Piper in Contr. U. S. Nat. Herb. 11: 128. 1906 Type: Falcon Valley, No. 61.
- M. Harfordii* var. *tenuis* Suksd. in Werdenda 1: 17. 1927 Type open woods on dry gravel, steep slopes at Bingen, June 4, 1926, No. 12018.
- M. Harfordii* var. *viridifolia* Suksd., l. c. Type not designated on long, high railroad embankment east of Vila, about 8 km east of Bingen, May 20, 29, 1924, May 20, 1926, No. 11686; railroad embankment east of Cooks, about 14 km west of Bingen, July 24, 1924, No. 11777
- M. retrofracta* Suksd. in Deutsche Bot. Monatsz. 19: 92. 1901 Type. in deep woods on damp ground in a narrow mountain valley in Skamania Co., July 6, 1894, No. 2334.
- Micranthes aequidentata* Small in N. Am. Fl. 22: 145. 1905 Type: Lower Cascades, May 29, 1886, No. 967
- Mimulus inflatus* Suksd. in Werdenda 1: 38. 1927 Type not designated, but No. 9915, moist, sandy riverbank, Bingen, Dec. 12, 1892, autumn, 1893, Nov., 1896, Nov., 1901, Sept. 16, 1904, is first cited
- M. jungermannioides* Suksd. in Deutsche Bot. Monatsz. 18: 154. 1900 Type: moist, overhanging rocks on the Columbia River near Bingen, Aug. 11, Sept., Nov., 1892, No. 1470
- M. moschatus* var. *pallidiflorus* Suksd., l. c. Type shady spring in Skamania Co., July 7, 1894, No. 2320.
- M. puberulus* Gdgr. in Bull. Soc. Bot. France 66: 219. 1919 Type: Bingen, No. 5016.
- M. puncticalyx* Gdgr., l. c. Type Bingen, No. 2775

- M. serotinus* Suksd. in Deutsche Bot. Monatss. 18: 154 1900. Type on moist, sandy riverbank near Bingen, Oct.-Dec., 1892, No 2185.
- M. Suksdorfii* Gray, Syn Fl ed 2 2 (1) 450. 1886 Type not cited in the paper, but according to A. L. Grant in Ann Mo Bot Gard 11: 265 1924, the type specimen is No 487, from Mt. Adams, elev. 7000-8000 ft., June 29, 1885, at Gray Herbarium
- M. washingtonensis* Gdgr in Bull. Soc. Bot. France 66: 218 1919 Type Bingen, No. 560.
- Montia depressa* Suksd. in Deutsche Bot. Monatss. 16: 221. 1898 Type open places on mountains, west Klickitat Co., April 29, 1891, and earlier (1880, etc.), No. 1880
- M. dipetala* Suksd. in Werdenda 1: 9 1923 Type not designated wet, mossy places at Bingen, April 29, 1917, April 1, 1921, No 9160, west of Hood, No 9154
- M. humilis* Suksd., l c p 10 Type not designated moist or wet places at Bingen, March 31, Apr 23, 1921, No 10697, April 1, 24, 1921, No 10698
- M. interrupta* Suksd in Deutsche Bot. Monatss. 16: 222 1898 Type sandy bottomlands, Bingen, May 4, 1891, No. 2009.
- M. latifolia* Suksd in Deutsche Bot. Monatss. 16: 222 1898 Type open places, Bingen, April 16, 1892, No 1881
- M. parviflora* var *adsurgens* Suksd., l c p 221. Type wooded, steep places near Underwood, May 2, 1894, No 2304.
- M. parviflora* var *hydrophila* Suksd., l c Type moist, sandy places under willows, bottomlands, Bingen, April 27, 1892, No 2097
- M. parviflora* var *rupestris* Suksd., l c Type moist rocks, Columbia River at Underwood, May 2, 1894, No 2305
- M. spathulata* var *disciformis* Suksd., l c p 222 Type dry, sunny places, w Klickitat Co., April 19, 1892, No 2095
- M. washingtoniana* Suksd., l c p 220 Type Lake Washington, Aug 5, 1890. No. 957
- Nasturtium columbiae* Suksd in Deutsche Bot. Monats. 16: 211 1898 Based on *N. sinuatum* var *columbiae* Suksd ex Wats in Gray, Syn Fl 1 (1) 147 1895
- N. sinuatum* var *columbiae* Suksd ex Wats in Gray, Syn Fl 1: 147 1895 Type "low, gravelly banks of the Columbia River at Bingen, Oregon [misprint for Washington], 1890, No 952"
- Navarretia klickitatensis* Suksd in Deutsche Bot. Monatss. 18: 133 1900. Type stony, sterile places, mouth of Klickitat River, May 27, June, 1890, No 991.
- N. propinqua* Suksd in Allg. Bot. Zeits. 12: 26 1906. Type not designated level, almost bare places, Spokane Co., June, July, 1889, Falcon Valley, June, 1897, 1898, Aug., 1903, No 2700, near The Dalles, June, 1897, 1901
- N. Suksdorfii* Howell, Fl. N. W. Am. 457. 1897 Type low grounds, Falcon Valley "Distributed by Mr. Suksdorf as *Gilia minima*. . ."
- Nemophila eriocarpa* Gdgr in Bull. Soc. Bot. France 65: 64 1918 Type Rockland, No. 2638.

- N. erosa* Suksd in West Am Sci 14 33. 1903. Type moist, stony places, Columbia River in Clark Co, Apr. 12, 1894, No 2315
- N. Menziesii* var. *minutiflora* Suksd in Deutsche Bot Monatss 18 133 1900 Type open places, Bingen, April, 1893, 1894, No 2189.
- N. minutiflora* Suksd in West Am Sci 14 32 1903 Based on *N. Menziesii* var. *minutiflora* Suksd in Deutsche Bot Monatss 18 133 1900
- N. pedunculata* f. *Chandleri* Brand in Pflanzenreich IV (251) 53 1913 Type not cited, but Suksdorf, No 2638, Rockland, is first cited
- N. reticulata* Suksd in West Am Sci 14 32 1903 Type open, moist or wet places, Bingen, 1880, and later, No 684
- Newberrya longiloba* Small in N Am Fl 29 18 1914 Type woods, Skamania Co, Aug 19, 1892, No 2168 (NY)
- Nicotiana caesia* Suksd in Werdenda 1 37 1927 Type low, sandy bank of the Columbia River at Bingen, Oct 30-Nov 28, 1922, No 11031; No 11782 (grown from seeds of No 11031, in the garden at Bingen, Aug, 1923-Nov, 1925)
- Nothocalais Suksdorfii* Greene in Bull Acad Cal 2 (5) 54 1886 Type west Klickitat Co, Apr, May, 1882
- Oenothera cheradophila* Bartl in Bot Gaz 44 302 1907 Type low, sandy riverbank, Bingen, Aug 20, 1906, No 5860
- Olsynium inflatum* Suksd in Werdenda 1 8 1923 Type moist prairie near Spangle, April 24, May 17, 1916, No 8507
- Orthocarpus densiusculus* Gdgr in Bull Soc. Bot. France 66 218 1919 Type Bingen, No 5015
- O. rarior* Suksd in Allg Bot Zeits 12 27 1906 Type borders of meadows and moist places, Falcon Valley, June 28, 1897, No 2779
- Oxalis Suksdorfii* Trel in Mem Bost. Soc Nat Hist 4: 89 1888 Type not designated "in woods, Oregon (Nuttall, Hall, Henderson, Suksdorf); collected in June by W. N. Suksdorf"
- Panicum barbipulvinatum* var. *hirsutipes* Suksd in Werdenda 1 17 1927. Type north banks of the Spokane River near Spokane Bridge, Sept. 14, 1916, No. 9068
- P. elegantulum* Suksd, l c p 16 Type north bank of the Spokane River at Spokane Bridge, Sept 14, 1916, No 9069.
- Pellaea Suksdorfiana* Butters in Am Fern Journ 11: 40 1921 Type cliffs near the Columbia River, Klickitat Co, No. 2083.
- Penstemon variabilis* Suksd in Deutsche Bot Monatss 18 153 1900 Type canyons near High Prairie east of the Klickitat River, June, 1884, 1891, No. 999.
- Peucedanum Suksdorfii* Wats. in Proc. Am Acad 20 369 1885 Type on dry, rocky mountainsides, west Klickitat Co, June, July, 1883, No. 132 (G)
- P. triternatum* var. *brevifolium* C & R. in Rev N. A. Umbel 70. 1888 Type not designated: Klickitat Co, 1881, Howell, No 379; rocky hillsides near The Dalles, Suksdorf
- P. triternatum* var. *macrocarpum* C. & R., l. c. Type not designated, but Suksdorf, No. 502, is first cited.

- Phlox speciosa* var. *nitida* Suksd. in Deutsche Bot. Monatss. 18: 132. 1900. Type: west Klickitat Co., June 2, 1893, No. 2208.
- P. speciosa* subsp. *lignosa* var. *Suksdorfii* Brand in Pflanzenreich IV (250): 74. 1907. Type: near Columbus, No. 883.
- Physaria alpestris* Suksd. in West Am. Sci. 15. 58. 1906. Type: on sand and boulders on sunny slope near glaciers on Mt. Adams, July 12, Sept., 1900; Aug., 1904.
- Piperia transversa* Suksd., in Allg. Bot. Zeits. 12. 43. 1906. Type: dry woods and brush, Bingen, July, 1900, No. 2812.
- Plagiobothrys adpressus* Gdgr. in Bull. Soc. Bot. France 65: 63. 1918. Type: Bingen, No. 5550.
- Plectritis anomala* (Gray) Suksd. in Deutsche Bot. Monatss. 15: 144. 1897. Based on *Valerianella anomala* Gray in Proc. Am. Acad. 19: 83. 1883.
- P. anomala* var. *lactiflora* Suksd. in Werdenda 1: 43. 1927. Type: moist, often shady places at Bingen, Apr. 16, 30, June 2, 1926, No. 11988.
- P. aphanoptera* Suksd. in Deutsche Bot. Monatss. 15: 144. 1897. Based on *Valerianella aphanoptera* Gray in Proc. Am. Acad. 19: 83. 1883.
- P. congesta* var. *alba* Suksd. in Allg. Bot. Zeits. 12: 6. 1906. Type: Bingen, April 29, May 18, 1894, No. 2552.
- P. gibbosa* Suksd. in Werdenda 1: 43. 1927. Type not designated: in a ditch east of Laurel, Falcon Valley, June 27, 1898, June 9, 1909, June 18, 1922, No. 9921; Holmes Creek at Laurel, June 16, 1922, No. 10865.
- P. involuta* Suksd. in Deutsche Bot. Monatss. 15: 144. 1897. Type: Klickitat Co., 1884.
- P. microptera* Suksd., l. c. p. 4. Type: on the lower Columbia River and its tributaries [No specimens cited.]
- P. racemulosa* Gdgr. in Bull. Soc. Bot. France 65: 35. 1918. Type: Bellingham Bay, No. 973.
- P. Suksdorfii* Gdgr., l. c. p. 36. Type: Bingen, No. 110.
- Poa gracillima* Vasey in Contr. U. S. Nat. Herb. 1: 272. 1893. Type: Mt. Adams, 1882, No. 33.
- P. pulchella* Vasey in Bot. Gaz. 7. 32. 1882. Type: Columbia River, Klickitat Co., 1881, No. 19.
- P. Suksdorfii* Vasey ex Beal pro synonym, Piper in Contr. U. S. Nat. Herb. 11. 135. 1906. Based on *Atropis Suksdorfii* Beal, Grasses N. Am. 2: 574. 1896.
- Polemonium paddoensis* Gdgr. in Bull. Soc. Bot. France 65: 58. 1918. Type: Mt. Adams, No. 2766.
- Polygonum arenicola* Suksd. in Werdenda 1: 8. 1923. Type: sandy places, dunes on a small island in the Columbia River near Bingen, Sept. 2, 1910, No. 7421.
- Polypodium amorphum* Suksd. in Werdenda 1: 16. 1927. Type: near the base of a shaded cliff in Dog Creek canyon, near Cooks, May 12, July 24, Oct. 14, 1925, No. 11667.
- Potamogeton columbianus* Suksd. in Deutsche Bot. Monatss. 19: 92. 1901. Type: Columbia River at Bingen, Nov. 12, 1883, Sept. 15, Oct., 1891, No. 2062.

- Potentilla cascadiensis* Rydb. in Mem. Dept. Bot. Columbia Univ 2: 109 1898.
Type: Chiquash Mts., 1892, No. 2165.
- P. leurocarpa* Rydb. in N. Am. Fl. 22: 307. 1908. Type. bottomland near Bingen, 1891, No. 2011 (NY)
- Prunus pinetorum* Suksd. in Werdenda 1: 24. 1927 Type: dry, open forest, Bingen, Aug 20, 1920, May 14, 1921, No. 10611
- Puccinellia Suksdorfii* St John in Northwest Sci. 2 (3) 80 1828. Type. Rockland, June 2, 1905, No. 5089. (WSC)
- Pyrola sparsifolia* Suksd. in Allg Bot Zeits. 12 26 1906. Type. deep woods along Moss Creek, June, 1895, and later, No 2695
- Pyrrocoma Suksdorfii* Greene in Leaflet Bot. Obs 2. 18. 1909 Type. prairies of Spokane Co., July 18, 1889. (US)
- Pyrus occidentalis* Wats in Proc. Am Acad 23 263 1888. Co-type. Mt. Adams, 5000-6000 ft elev
- Ranunculus occidentalis* var *laevicaulis* Suksd. in West Am. Sci 15 58 1906.
Type various places, with the species, Bingen, March 30, 1886, No. 1972.
- R. Suksdorfii* Gray in Proc Am Acad 21. 371 1886. Type damp ground, Mt Adams, elev 6000-7000 ft, 1884, No 234.
- R. verecundus* Robinson ex Piper in Contr. U S Nat Herb. 11 274 1906. Type wet gravelly places, Mt. Adams, elev 1850-2150 m, July 31, 1883, No 93 (G)
- Ribes ambiguum* Wats. in Proc Am. Acad. 18 193. 1883 Type not designated "on Scott Mt, Northern California, at 8000 ft alt, trailing over rocks, with the flowers very villous (Rev. E. L. Greene, Aug, 1876); Mt. Adams, elev 5000 ft., 1882, Suksdorf, No 54."
- R. migratorium* Suksd. in Deutsche Bot. Monatsz 18 86. 1900. Type. springy places in deep woods, Skamania Co., Aug. 13, 1886, and later, No 969.
- R. Suksdorfii* Heller in Muhlenbergia 3 11 1907, l. c. p. 52 (supplement)
Type. Bingen, April 17, 1897.
- Romansoffia Suksdorfii* Greene in Pittonia 5: 38 1902. Type damp or wet rocks, Mitchell's Point, Apr and May, 1884. (US)
- Roripa columbiae* Howell, Fl. N. W. Am. 1: 40. 1897 Based on *Nasturtium columbiae* Suksd. in herb, No 952
- Rosa nutkana* var *alta* Suksd. in Werdenda 1 23, 1927 Type. bottomlands, Bingen, May 25, Oct. 27, 1922, No 10821
- R. nutkana* var. *pallida* Suksd., l. c. Type: open pine forest near meadows, Falcon Valley, June 21, Oct. 14, 1919, No 10244.
- Rumex hesperius* Greene in Pittonia 4: 234 1901. Type: bottomlands, Bingen, Oct. 31, 1893. (EG)
- Sagittaria arifolia stricta* J. G. Smith in Ann Rep. Mo Bot Gard. 6. 34. 1895
Type boggy meadows and slow streams, Falcon Valley, Aug 1, 1885, No 1319, (674)
- S. Suksdorfii* Gdgr. in Bull. Soc. Bot. France 66 294. 1919. Type Falcon Valley, No. 1319c.
- Salix Dieckiana* Suksd. in Oesterr Bot. Zeits. 77 94. 1923 Type. on a wet meadow near Laurel, Falcon Valley, about 28 km. north of Bingen, April 23, June 17, 1919, No 10177, (♀); No. 10183, (♂).

- S pennata* Ball in Bot. Gaz 60 45 1915 Type Wodan's Vale, Mt. Adams, July 13, Aug 31, 1886, No. 9277, (16), (♂), No. 9266, (15), (♀)
- S Suksdorfii* Gdgr in Bull. Soc. Bot. France 66 289 1919 Type Bingen, No 5901, (♂ and ♀).
- Sanicula diversiloba* Suksd in Werdenda 1 29 1927 Type not designated moist or almost dry ground in open forest at Bingen, May 11, July 12, 27, 1918, No 10015; May 22, June 22, 1923, No 11399
- S tripartita* Suksd. in Allg. Bot. Zeits. 12 5 1906 Type moist or shady places near Bingen, May 16, July 2, 1898, No 2650
- Saxifraga aphanostyla* Suksd in Deutsche Bot. Monatss. 18 27 1900. Type meadow borders, Falcon Valley, elev 600 m, May 12, June 24, 1893, and earlier (1884, 1890), No 2201
- S bracteosa* Suksd, l c Type stony, mostly level places near Bingen, March 21, May, 1892, and earlier (1880), No 1728.
- S bracteosa* var *angustifolia* Suksd, l c Type on meadow borders, Falcon Valley, elev. 600 m, May 12, June 24, 1893, and earlier (1884, 1890), No 2201
- S bracteosa* var *leptopetala* Suksd in West. Am. Sci. 15 60 1906 Type. Bingen, April, 1899, 1904, No 4014
- S bracteosa* var *micropetala* Suksd, l c Type Bingen, April, 1904, No 4016.
- S fragosa* Suksd ex. Small in Bull. Torr. Bot. Club 23 363 1896, Suksdorf in Deutsche Bot. Monatss. 18 26. 1900 Type wet rocks near the Columbia River at Bingen, March 21, May, 1892, No. 1727.
- S fragosa* var *leucandra* Suksd in West. Am. Sci. 15 60 1906 Type Bingen, Apr, May, 1904, No 4015.
- S paddoensis* Suksd in West. Am. Sci. 15 59 1906 Type in shade on stony or sandy, wet places on bank of a creek on Mt. Adams, elev 2000 m, Sept 17, 1894, No. 2504
- Scrophularia nodosa occidentalis* Rydb. in Contr. U. S. Nat. Herb. 3 517 1896 Co-type No 997
- Sedum divergens* Wats in Proc. Am. Acad. 17 372 1882 Type not designated "in the Cascade Mts, Washington Terr., on Mt. Adams, by W. N. Suksdorf, Sept., 1880, and by myself, near the summit of Yakima Pass, Oct., 1880"
- Senecio Suksdorfii* Greenm. in Bot. Gaz 53 511 1912 Type rocky ridges, Mt. Adams, alt 2155 m, Aug. 9, 1882 (G)
- Silene dilatata* Suksd in Deutsche Bot. Monatss. 16 212 1898. Type shady, open wooded slopes, west Klickitat Co., July 6, 1892, No 2156
- S Suksdorfii* Robinson in Bot. Gaz 16 44 1891 Type elev 7000-8000 ft, Mt. Adams, Aug 9, 1882
- S tetragyna* Suksd in Deutsche Bot. Monatss. 16 212 1898 Type rocky places on high mountains, Skamania Co., Aug, 1886, 1892, No 1851
- Sisyrinchium sarmentosum* Suksd. ex Greene in Erythraea 3 121 1895 Type borders of wet meadows in Skamania Co., elev 2000-3000 ft, August; Suksdorf, in Deutsche Bot. Monatss. 19 91 1901. Type: mountain meadow, Skamania Co., Aug 31, 1893, No 2233.

- Sitanion hordeoides* Suksd in Werdenda 1 4 1923 Type dry prairie north of Spangle, June 29, 1916, No 8705
- S planifolium* J G Smith in U S D A Div Agrostat Bull 18 19 1899 Type high mountains, Skamania Co, Aug 10, 1896, No 224
- Spiraea convexa* Suksd in Werdenda 1 19 1927 Type among boulders at the foot of a high talus slope near Bingen, June 12, 1923, June 5, Aug 8, 1924, No 11434
- S hydrophila* Suksd, l c p 20 Type wet or moist, shady places, at a spring near Bingen, June 5, Aug 8, 1924, No 11717
- Stevonema ciliatum* var *occidentale* Suksd in Allg Bot Zeits. 12 26. 1906 Type bottomlands, Bingen, Sept 3, Nov 3, 1896, No 1530
- Stenactis eriolepis* Gdgr in Bull Soc Bot France 65 48 1918 Type Bingen, No 2846.
- Stenanthium rhombipetalum* Suksd in Werdenda 1 6. 1923 Type brush, moist rocks near Cape Horn, May 27, June 29, 1920, No 10466
- Stephanomeria Suksdorfii* Gdgr in Bull Soc Bot France 65 53 1918. Type Bingen, No 5867
- Stipa comata* subsp *intonsa* Piper in Contr U S Nat Herb 11 109 1906 Type near Rockland, No 1026
- S comata* var *Suksdorfii* St John, Fl S E Wash and Adj Idaho, p 61 1937 Type in a grove s w of Philco Lake, Aug 3, 1916, No 8990 (WSC)
- S stricta* Vasey in Bull Torr Bot Club 10 42 1883 Type Washington [erroneously cited as Oregon], Suksdorf
- S viridula* var *pubescens* Vasey in Contr U S Nat Herb 3 50 1892 Type Washington, Suksdorf (fide Hitchc, Grasses U S p 963 1935) No specimens are cited in the paper
- Suksdorfia* Gray in Proc Am Acad 15 41 1880 Type *Suksdorfia violacea* Gray
- S violacea* Gray, l c p 42 Type wet rocks on the Columbia River, near the junction of the White Salmon River, April, 1878, No 19
- Swerbia columbiana* St John in Am Midl Nat 26 22 1941 Type Klickitat Co, May 27, Aug, 1881, No 40
- Symphoricarpos rivularis* Suksd in Werdenda 1 41 1927 Type low, seasonally flooded ground along Holmes Creek at Laurel, Falcon Valley, June 26, 1912, June 30, Oct 4, 1914, No 7557.
- Toxicodendron coriaceum* Greene in Leaflet Bot Obs & Crit 1 120 1905 Type not designated (US)
- T lobadioides* Greene, l c p 119 Type Columbia River, Klickitat Co, May 6, July, 1885 (US)
- Trifolium arcuatum* Piper in Bull Torr Club 28 39 1901 Type Simcoe Mts, June 6, 1884, No 270
- Troximon alpestre* Gray in Proc. Am Acad 19 70 1884 Type not designated. "Mt Adams, Wash Terr, Suksdorf, Mt Hood or in the mountains near it, Oregon, L F Henderson"
- T. gracilens* Gray, l c p 71. Type not designated. "Cascade Mountains of Oregon

- and Wash. Terr., Lyall, Nevius, Suksdorf. Rocky Mountains in Northern Wyoming, Dr. Forwood."
- T. grandiflorum* var. *obtusifolium* Suksd. in Deutsche Bot. Monatss. 18: 98. 1900. Type: dry, level places near Bingen, May 30, 1891, No. 2025.
- T. heterophyllum* var. *cryptopleuroides* Suksd., l. c. Type: steep mountains, west Klickitat Co., June 15, 1894, No. 2313.
- T. heterophyllum* var. *glabratum* Suksd., l. c. Type. dry ground, Klickitat Co., May 26, 1894, No. 2312.
- Utricularia occidentalis* Gray in Proc. Am. Acad. 19: 95. 1884. Type: Falcon Valley, 1880, 1883, No. 169.
- Vaccinium Oxycoccus* var. *intermedium* Gray, Syn. Fl. ed. 2. 2 (1). 396. 1886. Type not designated: "Wash Terr and northern Oregon, Suksdorf, Henderson."
- Valeriana Suksdorfii* Gdgr. in Bull. Soc. Bot. France 65. 36. 1918. Type: woods, Mt. Adams, elev 2000 m, No. 6060.
- Valerianella anomala* Gray in Proc. Am Acad. 19 83 1884 Type: wet grounds on the Columbia River and near it, Nos. 2 and 26 [according to an undated letter from Dr. Gray to Suksdorf].
- V. aphanoptera* Gray, l. c. Type: wet hillsides along the Columbia River, Klickitat Co., No. 27 [according to an undated letter from Dr. Gray to Suksdorf].
- V. congesta* var. *trigona* Suksd. in Deutsche Bot. Monatss. 18: 97 1900 Type: Bellingham Bay, 1890, No. 973.
- Viburnum ellipticum* var. *macrocarpum* Suksd., l. c. Type: moist ground, Bingen, June 3, Sept., 1893, No. 1213.
- Vicia americana* var. *pallida* Suksd., l. c. p. 26. Type. dry places near Bingen, May 21, June, 1892, No. 2111.
- V. washingtonensis* Suksd. in West. Am. Sci. 15: 59. 1906. Type mountain slope near Bingen, May 21, June, 1900, No. 2643.
- Viola glabella* var. *remotifolia* Suksd in Werdenda 1 26. 1927 Type: low, almost dry woods or in brush near Cape Horn, April 29, May 27, 1920, No. 10396.
- V. Howellii* Gray in Proc. Am Acad 22. 308 1887. Type: Klickitat Co., Suksdorf.
- V. subsagittifolia* Suksd in Werdenda 1. 25 1927 Type: low, almost bare, moist plains about 10 km s.e. of Spangle, April 26, May 15, 1916, No. 8530.
- V. xylorrhiza* Suksd., l. c. Type: steep, dry, somewhat stony mountainsides east of Husum, May 10, June 30, 1919, June 1, 1920, No. 10200.
- Xanthium affine* Green in Pittonia 4: 60 1899. Type No. 1584. (EG)
- X. silphifolium* Greene, l. c. Type: banks of the Columbia River, Sept., 1883. (US)
- X. varians* Greene, l. c. p. 59. Type. sandy banks of the Columbia River, Klickitat Co., Oct., 1893, No. 1583. (EG)

V. GAZETTEER

A list of the localities visited by Suksdorf is given below. The names are accompanied by short explanatory notes, and reference is made to maps on which the stations may be located. A list of reference maps and other source material is presented on pages 118-120.

The importance of having an aid to the location of Suksdorf's collecting stations is self-evident. Many of his favorite localities—for instance, Falcon Valley, Wodan's Vale, Butterfly Lake, Chiquash Mountains—are not found on any maps; yet the names appear on countless labels, and the data appearing on these labels are cited in every monograph and revision which deals with Pacific Northwest plants. Anyone attempting to rediscover a type locality or to map the distribution of a species from the data on Suksdorf's labels would be hopelessly lost. Specimens have been cited as being "collected on Mt. Adams by Howell, and on Mt. Paddo by Suksdorf,"¹² the author apparently not knowing that Mt. Adams and Mt. Paddo are the same.

CALIFORNIA

Berkeley A city in northwestern Alameda Co. Map 1, E-9

Crystal Springs Lake A lake in central San Mateo Co., southwest of San Mateo. Map 1, Inset.

Fleming A point on San Francisco Bay in northern Alameda Co., north of Berkeley. Map 1, Inset.

Laguna Valley The valley Lagunitas Creek in Marin Co., northwest of Mt. Tamalpais. Map 1, Inset.

Lathrop A town in south central San Joaquin Co., south of Stockton. Map 1, G-9.

Lompoc A town in western Santa Barbara Co., along the Santa Ynez River. Map 1, H-15

Long Valley A town on U. S. Highway 101, 10 miles south of Laytonville, in Mendocino Co. Map 2 (as Longvale). Suksdorf erroneously placed this locality in Lake County, which is adjacent to Mendocino Co.

Merced, Lake A lake in San Francisco Co., southwest of San Francisco at Ingle-side. Map 1, Inset.

Mill Valley. A town in southern Marin Co., northwest of Sausalito. Map 1, D-9

Napa. A city in southern Napa Co. Map 1, E-8.

Nobel A town in northern Alameda Co., north of Berkeley. Map. 1, Inset.

Richmond. A town in western Contra Costa Co. on the north end of San Francisco Bay. Map 1, E-9

San Bruno. A town in northern San Mateo Co., south of San Francisco. Map 1, E-9.

¹² See *Agrostis humilis* Vasey in Bull. Torr. Bot. Club 10: 21 1883

- San Mateo** A town in northern San Mateo Co., south of San Francisco Map 1, E-9
- Stege** A town in western Contra Costa Co., northwest of Berkeley Map 1, E-9
- Suisun** A town in southwestern Solano Co., on the Southern Pacific Railroad Map 1, E-8
- Surf** A railroad station on the Pacific Ocean in western Santa Barbara Co., west of Lompoc. Map 1, H-15
- Tamalpais, Mount** A mountain in southern Marin Co., northwest of Mill Valley Map 1, D-9
- Tennessee Valley** A small valley near the Pacific Ocean in southern Marin Co., near Fort Barry and on the north side of the Golden Gate opposite San Francisco

MONTANA

- Big Muddy Creek** An eastern tributary of Potter Creek, arising in the Gallatin National Forest in the northeast corner of Gallatin Co., flowing east into Park Co., and entering Potter Creek about 2 miles east of Wilsall. Elk Ridge is the 7200-foot ridge at the head of Big Muddy Creek, in Gallatin Co. Map 21, 46° N Lat, 110° 45' W Long
- Bridger Pass** The canyon of Bridger Creek, in the Bridger Mountains of northeastern Gallatin Co., between Sedan and Bozeman, along Hwy 187, about 18 miles northwest of Livingston. Mr Adolph Suksdorf states, "Bridger Pass is about 18 miles from our house, he [Wilhelm] went there just one time, going with us when we went to Bozeman. He got off in the pass while we went on, and we picked him up again when we returned. We went by auto." Map 22, 45° 45' N Lat, 110° 55' W Long
- Chico Hot Springs** A hot spring near the village of Chico, on the Yellowstone River, 25 miles southwest of Livingston, in southwestern Park Co. Map 22, 45° 20' N Lat, 110° 43' W. Long
- Cottonwood Creek** An eastern tributary of Potter Creek in northeastern Gallatin Co., and northwestern Park Co., about 10 miles northwest of Wilsall. Map 21, 46° 8' N Lat, 110° 45' W Long
- Elk Ridge** See *Big Muddy Creek*
- Flathead Creek** A western tributary of Potter Creek in eastern Gallatin and western Park counties, west of Wilsall. Suksdorf's collections along this creek were made near the county line. Map 21, 46° N. Lat, 110° 45' W Long
- Horse Creek** An eastern tributary of Shields River in the Crazy Mountains of northwestern Park Co., a few miles southeast of Wilsall. Map 21, 46° N. Lat, 110° 40' W. Long
- Jackrabbit Gulch** A small canyon running parallel to Suksdorf Gulch and just north of the latter, in northwestern Park Co., 9 miles northwest of Wilsall.
- Livingston** A town on the N P Ry., along the Yellowstone River in central Park Co. Map 22, 45° 40' N Lat, 110° 35' W. Long.
- Mahn Creek** A small creek running through the Mahn property (Mahn Gulch) just north of A. Suksdorf's farm in northwestern Park Co., about 10 miles northwest of Wilsall. Mahn Creek was also called Rice Creek.

Pappelbach. See *Cottonwood Creek*

Potter Basin The head of Potter Creek in northwestern Park Co, about 12 miles northwest of Wilsall. Potter Creek is on Map 21, 46° 10' N Lat, 110° 45' W Long

Rice Creek See *Mahn Creek*

Sedan A village on Highway 187, in northeast Gallatin Co, 10 miles west of Wilsall Map 3

Shields River A large river having its source in the Crazy Mountains of northeastern Park Co, flowing southward and entering the Yellowstone River 8 miles northeast of Livingston Suksdorf botanized along Shields River a few miles north of Wilsall Map 21, 46° 5' N Lat, 110° 40' W Long

Suksdorf Creek A small creek running through Suksdorf Gulch

Suksdorf Gulch A small canyon in northwestern Park Co, about 9 miles northwest of Wilsall The Adolph Suksdorf farm which Wilhelm Suksdorf used as a base for his botanical excursions was in this gulch

Trail Creek An eastern tributary of the Yellowstone River in east central Park Co, about 12 miles southwest of Livingston Map 22, 45° 35' N Lat, 110° 45' W Long

Wallrock Basin The head of Cottonwood Creek, bordered on the west by a steep rock wall, elev 7100 ft Wallrock Basin is in the northeast corner of Gallatin Co, 12 miles northwest of Wilsall Adolph Suksdorf states, "Wallrock Basin is 3 or 4 miles northwest of our house I saw it quite often On the west side of the basin is a rock wall or cliff several hundred feet straight up and down It can be seen a long way off, from many parts of the Valley" Suksdorf reached the locality on horseback

Watercress Spring A spring along the highway in eastern Gallatin Co, just west of Bozeman Tunnel, and between Bozeman Tunnel and Rocky Canyon

Wilsall A town in north central Park Co, at the junction of Highways 89 and 97, 28 miles north of Livingston Map 3

OREGON

Albina A suburb of the city of Portland, on the east side Map 4, G-3

Anderson A station about 3 miles north of Boring, on the border of Multnomah and Clackamas counties Map 4, H-3

Balch Creek A creek which runs through a deep canyon and enters Guild Lake on the west side of Portland in Multnomah Co Map 26, T 1 N, R 1 E

Baldwin's farm A farm in the upper Hood River Valley, 12 miles south of Hood River, in Hood River Co

Beaver Creek An eastern tributary of the Willamette River, 5 miles south of Oregon City, Clackamas Co Map 24, T 3 S, R 2 E

Bonneville A town on the Columbia River in the northeastern corner of Multnomah Co Map 20, T 2 N, R 7 E.

Boring A village about 10 miles southeast of Portland, in northern Clackamas Co. Map 13, T 1 S, R. 3 E.

Bridal Veil A village on the Columbia River in northern Multnomah Co, opposite Cape Horn Map 11, T 1 N, R. 5 E.

- Cascade Locks* A town on the Columbia River in the northwestern corner of Hood River Co., about 5 miles northeast of Bonneville. Map 20, T 2 N, R. 7 E.
- Clatskanie* A station on the Ore. R. R. & Nav. Co line east of Portland, in east central Multnomah Co. Map 26, T. 1 N, R. 2 E.
- Dalles, The* A city on the Columbia River in northern Wasco Co., about 15 miles east of Hood River. Map 18, T. 1 N., R. 13 E.
- Deep Creek* A village on the Clackamas River, 3 miles south of Boring, in Clackamas Co. Map 13, T. 2 S., R. 3 E.
- Eagle Creek* A branch of the Clackamas River, 10 miles east of Oregon City, in Clackamas Co Map 13, T 2 S, R. 3 E.
- Elk Rock* A village on the west bank of the Willamette River, opposite Milwaukie, in Clackamas Co. Map 13, T. 1 S., R 1 E.
- Fairview* A station on the Ore. R R. & Nav. Co. line, east of Portland, in central Multnomah Co. Map 5. H-13.
- Grants* A ghost town between the U P. R R. tracks and the bluff, where the road from the Maryhall Ferry joins the Columbia River Highway in Sherman Co Robert Ballou, Early Klickitat Valley Days (Goldendale, Wash, 1938), p 35. Map 6, B-9.
- Gresham* A town about 7 miles directly east of Portland, in Multnomah Co. Map 13, T. 1 S, R. 3 E.
- Henningsen* A farmer at Boring
- Hood River* A town on the south bank of the Columbia River, at the mouth of the Hood River, in Hood River Co Map 20, T. 3 N, R. 10 E.
- Indian Creek* A creek south of Hood River, in northern Hood River Co. Map 11, T. 2 N., R. 10 E.
- Koberg* A pioneer settler at Stanley Rock, near Hood River.
- Lannton* A town on the west bank of the Willamette River at the northwest edge of Portland, in Multnomah Co. Map 13, T. 1 N., R. 1 W.
- Menominee* A village 6 miles southwest of Hood River, in northern Hood River Co. It is also called Meno. Map 4, K-2.
- Milwaukie* A town on the east bank of the Willamette River in Clackamas Co Map 24, T. 1 S., R. 1 E.
- Mitchell Point* A rocky prominence, elev. 1,170 ft, overlooking the Columbia River, 5 miles west of Hood River, in northern Hood River Co. Map 20, T. 3 N., R. 10 E.
- Moser* A village on the Columbia River, 5 miles east of Hood River, in northwestern Wasco Co. Map 18, T. 2 N., R 11 E.
- Mount Scott* A hill, elev. 1,083 ft, 6½ miles southeast of the business district of Portland, in Multnomah Co. Map. 24, T. 1 S., R. 2 E.
- Multnomah Falls* A high waterfall on the Columbia River in northern Multnomah Co, about 3 miles east of Bridal Veil. Map 11, T. 1 N., R. 6 E.
- Odell* A village 6 miles southwest of Hood River, in northern Hood River Co., elev. 700 ft. Map 20, T. 2 N., R. 10 E.
- Oregon City* A city on the Willamette River, 9 miles south of Portland, in Clackamas Co Map 13, T. 2 S, R. 2 E.

- Palmblad.* A station on the Portland Electric Power R. R., near Gresham Map 4 (index of cities and towns).
- Portland.* A major city on the Willamette River in northern Multnomah Co. Map 26.
- Rooster Rock.* A promontory overlooking the Columbia River, 4 miles west of Bridal Veil, in northern Multnomah Co. Map 11, T. 1 N., R. 4 E.
- Ruthton.* A village in northern Hood River Co., 2 miles west of Hood River. Map 13, T. 3 N., R. 10 E.
- St. Helens.* A town on the Columbia River in eastern Columbia Co. Map 11, T. 5 N., R. 1 W.
- Sellwood.* A suburb on the south side of Portland, in Multnomah Co. Map 13, T. 1 S., R. 1 E.
- Shattuck.* A station on the S. P. R. R., just south of Portland, in southwestern Multnomah Co. Map 5, G-13.
- Siefer.* A village near Boring, Clackamas Co. Map 4 (index of cities and towns).
- Sonny.* A village along the Columbia River just below Mitchell Point, in northern Hood River Co. Map 20, T. 3 N., R. 9 E.
- Stanley Rock.* A high, flat-topped island on the Columbia River east of Hood River and just across the river from Bingen, Wash. Koberg, one of the early settlers, lived here. Map 18, T. 3 N., R. 10 E.
- Sylvan.* A village about a mile west of Portland, in Multnomah Co. Map 26, T. 1 S., R. 1 E.
- Van Horn.* A village $3\frac{1}{4}$ miles south of Hood River, in northern Hood River Co. Map 20, T. 2 N., R. 10 E.
- Viento.* A village along the Columbia River, 8 miles west of Hood River, in northern Hood River Co. Map 20, T. 3 N., R. 9 E.

WASHINGTON

- Agleithal (Columbine Vale).* A small valley near "Elfensee," north of the Indian Race Track in the Chiquash Mts.
- Albion.* A village along the Palouse River in eastern Whitman Co., 5 miles northwest of Pullman. Map 27, T. 15 N., R. 44 E.
- Alder Creek.* See *Ellerbach*
- Algenbach (Algae Creek).* A small creek near Butterfly Lake, in east central Skamania Co.
- Altoona.* A town on the Columbia River, about 6 miles west of Brookfield, in southwestern Wahkiakum Co., Wash. Geol. Surv. Bull. 17: 64. 1917. Map 9.
- Anchor Lake.* See *Ankersee*
- Ankersee.* A small lake in the Chiquash Mts. of eastern Skamania Co., probably one of the lakes clustered about Gifford Peak.
- Aschberg (Ash Hill).* A rise of volcanic nature west of Gilmer. It is now Mount Adams Orchard.
- Ash Hill.* See *Aschberg*.
- Asterberg.* See *Wacholderberg*.
- Bachelor Island.* A large island between Lake River and Columbia River, opposite Ridgefield, in western Clarke Co. Wash. Geol. Surv. Bull. 17: 68. 1917. Map 7, T. 4 N., R. 1 W.

Bald Hill See *Kahlenberg*

Bärenthal See *Bear Valley*

Beacon Rock A large promontory on the Columbia River in south central Skamania Co, 2 miles east of Skamania. Beacon Rock has also been called Castle Rock. Map 11, T 2 N, R. 6 E.

Bear Valley A valley about 14 miles north of Husum, in west Klickitat Co Map 11, T 6 N., R 10 E. Christian Guler, for whom the neighboring village is named, homesteaded in Bear Valley Interstate Publishing Co, Illustrated Hist of Klickitat, Yakima, and Kittitas Counties (Chicago, 1904), p. 522.

Bellingham Bay An embayment on the east shore of Washington Sound, at Bellingham, in southwestern Whatcom Co Wash Geol Surv. Bull. 17 74. 1917 Map 16, T. 38 N., R. 2 E

Berry Creek See *Heidelberg*

Bickleton A town about 20 miles north of Roosevelt in northwestern Klickitat Co, elev 3002 ft Wash Geol Surv. Bul. 17 76 1917 Map 15, T 6 N, R 20 E.

Big White Salmon River See *White Salmon River*

Bingen A town on the S P & S. R R and Columbia River, near White Salmon, in southwestern Klickitat Co Wash Geol Surv Bull 17 77 1917 Suksdorf's home was here When the region was first settled, the post office on the bottomlands was called White Salmon As the back country became settled, the post office of White Salmon was moved to the top of the hill northwest of the old town, and the village on the bottomlands was left without a name Later, the Suksdorf family was responsible for a new name for the town, Bingen, after the city of the same name on the Rhine Until this change was made, Suksdorf referred to the locality as "Columbia River, west Klickitat Co" For an interesting account of the history of the names of the two towns, see Ballou, Early Klickitat Valley Days pp 448-450

Bingen Mountain A steep hill on the northeast edge of the town of Bingen. The townspeople erected a sign on the mountain by dragging large boards up the slope and arranging them to form letters spelling the name of the town There are some low cliffs at the base of the mountains; the lower slopes are grassy, with scattered groves of oaks, and the summit is wooded with conifers The current name is Burdoin's Mountain Suksdorf commonly called this hill the "Blumenberg"

Bird Creek A small stream in Yakima and Klickitat counties, southeast of Mt Adams, near Glenwood Wash Geol Surv. Bull 17 77 1917 Map 14.

Bird Creek Caves Probably identical with "Hohlenklippe."

Bird Creek Islands Islands formed by the confluence of several tributaries of Bird Creek on the southeast side of Mt Adams.

Bird Creek Meadows A subalpine parkland along upper Bird Creek in southeastern Yakima Co, north of Glenwood. Map 11, T. 8 N, R. 11 E

Black Rock Spring A spring in eastern Grant Co, northeast of Moses Lake Grant Co was formerly included in Douglas Co. Map 10, R-9.

Blauenberg One of the Chiquash Mts. of eastern Skamania Co. The exact location is not known.

Blauensee A small lake on the northeast slope of Gifford Peak (Seenberg) in the Chiquash Mts. Map 20, T 6 N, R 8 E. There is also a Blue Lake or "Blauensee" southwest of Stevenson, in southern Skamania Co See itinerary (Aug 28, 1901, No 2903). Map 20, T 2 N, R 7 E.

Blue Lake. See *Blauensee*

Blue Mountain. See *Blauenberg*

Blumenberg See *Bingen Mountain*. In the springtime the mountain undergoes several striking changes in color due to the different flowers that cover its slopes at various times—hence the name

Breccia Vale See *Trümmerthal*

Breitenberg King Mountain, on the south slope of Mt Adams, in northwestern Yakima County. Map 14.

Burdon A farmer who lived on the summit of Bingen Mountain. See *Bingen Mountain*.

Burnet Creek. See *Poterium-bach*

Butterfly Lake (Schmetterling-See) A small lake on the northwest edge of the Big Lava Bed and about 3 miles northwest of the Indian Race Track, in east central Skamania Co Suksdorf explained, in a letter to Dr Pickett, that Schmetterling-See is the "southern Goose Lake" This was one of his favorite collecting grounds. A steep bluff borders its northwest shore, and on an island in the lake Suksdorf once built a small cabin. Butterfly Lake was reached by means of a trail leading west from the Ice Cave It appears as Goose Lake on map 20, T. 5 N, R 8 E.

Cabbage Mountain. See *Kohlberg*

Camas Prairie A farming settlement in the southwestern part of Falcon Valley, in northwestern Klickitat Co, near Fulda

Cameron's Sawmill A sawmill on the White Salmon River, about 5 miles northwest of White Salmon See Ballou, *Early Klickitat Valley Days*, p 452

Cape Horn A station on the S P & S R R., 18 miles west of Stevenson, in southwestern Skamania Co. Wash Geol Surv Bull 17-90. 1917. Map 11, T. 1 N., R. 5 E.

Carson. A station on the S P & S R R., 4 miles east of Stevenson, in south central Skamania Co Wash Geol Surv Bull. 17 91. 1917 Map 20, T 3 N., R. 8 E.

Carsten. Farmer at Ash Hill near Gilmer

Castle Rock. See *Beacon Rock*

Centralia. A city in the valleys of the Chehalis and Skookumchuck rivers in the northwestern part of Lewis Co Suksdorf passed through Centralia on his trip to Whatcom Co, in July, 1890. Map 9, I-5

Chapman. A pioneer Camas Prairie family Chapman Creek is on the Chapman farm.

Cheney A town located in the southwestern part of Spokane Co. Wash Geol Surv. Bull 17: 96. 1917 Map 9, G-18.

- Chenoweth** A town on the Little White Salmon River in southeastern Skamania Co., 5 miles north of its mouth Map 9, L-8.
- Chinook** A town on the north bank of the Columbia River, and on the line of the O W R R & N Co, 5½ miles northwest of Megler, in southwestern Pacific Co Wash Geol Surv. Bull 17 98. 1917. Map 9, K-2.
- Chiquash Mountains** A range of mountains in eastern Skamania Co, southwest of Mt. Adams, and east of the Wind River Suksdorf, Flora Washingtonensis (White Salmon, Wash, 1892), p 3
- Chuckanut Bay** A small embayment on the east shore of Bellingham Bay, south of Bellingham, in southwestern Whatcom Co Wash Geol Surv Bull 17·99 1917 Map 28, T 37 N, R. 2 E
- Cleveland** A village about 18 miles northwest of Roosevelt, in northeastern Klickitat Co Map 15, T 6 N, R. 20 E.
- Cold Spring, Falcon Valley** See *Kuhleborn*
- Cold Spring, Mt Adams** A spring on the south slope of Mt Adams, in southwestern Yakima Co, west of the Lava Flow Map 14, T 7 N, R 11 E
- Collins** A town on the S P & S R R., 8 miles east of Stevenson, in South central Skamania Co Wash. Geol Surv. Bull 17 105 1917 Map 20, T 3 N, R 8 E
- Columbia River** See *Bingen*
- Columbine Vale** See *Aglesthal*.
- Columbus** A village near Columbia River and the S P & S R R, east of Lyle, in south central Klickitat Co Map 9, L-10 Columbus is now Maryhill
- Conboy Lake** (*Comboy Lake* of Suksdorf's notes, *Cowboy Lake* of some maps). A lake 3 miles south of Glenwood, in northwestern Klickitat Co Wash Geol. Surv. Bull 17. 107 1917 Conboy Lake was in Falcon Valley It has been drained and no longer exists Map 11, T 6 N, R 12 E
- Connell** A town on the N P R R and the line of the O-W R R & N. Co, in north central Franklin Co, 36 miles northeast of Pasco Wash Geol Surv. Bull 17 107 1917. Map 17, T 14 N, R 31 E, Sec. 36
- Cook, or Cooks** A town on the S P & S R R, 12 miles east of Stevenson, in southeastern Skamania Co Wash Geol. Surv Bull 17 107 1917 Map 20, T 3 N, R 9 E. *Cook* is also the name of a farmer at Bingen. To avoid confusion, Suksdorf always accompanied the latter name with the letter "B," signifying Bingen.
- Cottonwood** A community in southeastern Lincoln Co, or in adjacent Spokane Co, between Crab Creek and Cheney
- Cowslip Spring.** See *Kuhlumenquelle*
- Crab Creek** A creek flowing west through southern Lincoln Co, through Moses Lake, Grant Co., and emptying into the Columbia River at Beverly, Grant Co Suksdorf's collections were made at various places along Crab Creek, in June, 1884 Map 9
- Dead Canyon.** A canyon leading off from the Klickitat River on the west about 20 miles from its mouth at Lyle, in western Klickitat Co
- Dog Creek** A small northern tributary of Columbia River, 1 mile west of Cook,

- in south central Skamania Co Wash Geol Surv Bull 17 122 1917
Map 20, T 3 N, R 9 E
- Donnerthal* The valley of the Big Muddy Creek, just below the Klickitat Glacier, on the east slope of Mt Adams, in southwestern Yakima Co Suksdorf named the little valley after the god Donar, or Donner, of mythology Map 14, 46° 11' N Lat, 120° 25' W Long
- Dornbach (Thorn Creek)* The west branch of the White Salmon River, in east central Skamania Co, west of Mt Adams
- Drano Lake* A lake on the bottomlands of the Columbia River at the mouth of the Little White Salmon River, one mile east of Cook, in the southeast corner of Skamania Co Map 20, T 3 N, R 9 E
- Duck Lake* A small lake in south central Lincoln Co, at the source of Duck Creek, 5 miles northeast of Odessa Map 9, G-15
- Eagan* A farmer at Bingen.
- Eichberg (Oak Ridge)* A ridge east of Husum, in southwestern Klickitat Co
- Eishöhle* Ice caves on the east central border of Skamania Co, about 7 miles southwest of Guler Map 20, T 6 N, R 9 E
- Elfensee* A small lake on the southeast side of Berry Mountain, a few miles northwest of Butterfly Lake, in east central Skamania Co
- Ellerbach (Alder Creek)* A small creek, probably one of the many small tributaries of upper Bird Creek, on the southeast side of Mt Adams, in southwestern Yakima Co
- Falcon Valley* The fertile swampy plateau near the southeastern base of Mt Adams, in northwestern Klickitat Co It includes the towns of Fulda, Laurel, and Glenwood, and is bounded on the northeast by the deep canyon of the Klickitat River Suksdorf's farm was on the east half of the northeast quarter of section 12, near Fulda.
- Farbenfelsen (Color Rocks)* Rocks or cliffs near the Klickitat Glacier on the east side of Mt Adams, in southwestern Yakima Co
- Fiene* A farmer in Trout Lake Valley
- Fingerkrautwiese (Potentilla Meadow)* A small meadow on the southeast side of Mt. Adams, possibly in the "Wodanthal"
- Fishers Landing (Fisher)* A town on the Columbia River and the S P & S R R, 9 miles east of Vancouver, in south central Clarke Co Wash Geol Surv. Bull 17 136 1917 Map 26, T 1 N, R. 2 E.
- Forellen-See* See Trout Lake
- Fort Columbia.* A fort on the north bank of the Columbia River and on the line of the O-W R R & N Co, 4 miles west of Megler, in southwestern Pacific Co Wash Geol. Surv Bull 17 105 1917. Map 8, C-11
- Frasier* A farmer in Falcon Valley
- Fulda.* A post office about 5 miles south of Glenwood, northwestern Klickitat Co Fulda is in Falcon Valley Wash Geol Surv Bull 17 142 1917. Map 10, L-14
- Garfield* A town on the N P and S & I E railroads and the line of the O-W R. R. & N. Co, 18 miles northeast of Colfax, in east central Whitman Co Wash. Geol Surv Bull 17 142 1917 Map 23, T 42 N, R 45 E

Germerthal (Hellebore Vale) A small valley near the Indian Race Track in the Chiquash Mts. of eastern Skamania Co.

Gerstenwiese. See *South Prairie*.

Gilmer A post office 3 miles east of the White Salmon River and 11 miles north of Bingen, in west central Klickitat Co. Map 11, T. 5 N., R. 11 E. Gilmer is now Gilmer Valley

Gilmer Valley. The valley of Gilmer Creek, southwest of Gilmer.

Glade, The The local name for Glade Creek, in southeast Yakima and Klickitat counties The collections of Suksdorf were made at the source of Glade Creek, at Patterson's Ranch in southeastern Yakima Co., a few miles north of Bickleton. Glade Creek is on map 9, K-12.

Glenwood A town about 22 miles north of Lyle, in northwestern Klickitat Co. Glenwood is in the northern part of Falcon Valley. Map 11, T. 6 N., R. 12 E.

Grand-dalles A town on the Columbia River and on the S P & S R R, in southwestern Klickitat Co Wash Geol. Surv Bull 17: 148. 1917. Map 11, T. 6 N., R. 12 E. Grand-dalles is a later name for Rockland. See *Werdenda* 1: 36. 1927.

Grasberg See *Breitenberg*

Green Lake. A lake about 6 miles southeast of Baker Lake, in south central Whatcom Co. Map 32, T. 39 N., R. 3 E., Sects 9, 10.

Grosse Wiese (Big Meadow) A part of Wodan's Vale.

Guler. A post office about 25 miles north of White Salmon, in northwestern Klickitat Co. Wash Geol. Surv. Bull. 17: 152. 1917. Map 11, T 6 N, R. 10 E.

Hamilton Island. An island $1\frac{1}{2}$ miles long, in the Columbia River, 2 miles below Cascades, in south central Skamania Co Wash Geol Surv Bull 17: 153. 1917. Map 20, T 2 N, R 7 E.

Hangman Creek See *Latah Creek*

Hawk Prairie. A meadow or prairie on the summit of Bingen Mountain. Suksdorf also called this Hog Prairie.

Heidelbach (Berry Creek). An eastern tributary of the Little White Salmon River, entering the latter $9\frac{1}{2}$ miles north of Cook, in southeastern Skamania Co. The source of Berry Creek is on Little Huckleberry Mountain, the "Heidelberg" of Suksdorf's notes. Map 20, T. 4 N., R. 9 E.

Heidelberg Little Huckleberry Mountain, a 4,784-ft. peak immediately south of South Prairie, in east central Skamania Co Map 20, T. 5 N., R. 9 E.

Hellebore Vale. See *Germerthal*

Hellroaring Canyon. See *Wodan's Canyon*.

Henderson. A farmer at Bingen.

Heucherfelsen (Heuchera Rocks) A part of Wodan's Vale.

High Prairie A fertile farming region along the east side of the Klickitat River, northeast of Lyle and southwest of Goldendale, in western Klickitat Co.

Höhlenklipps Cliffs in Bird Creek Canyon, on the southeast side of Mt. Adams, in southwestern Yakima Co.

Holmes Creek A creek in Falcon Valley, flowing northeastward to Laurel.

Hog Prairie. See *Hawk Prairie*

Hood. A station on the S P. & S R. R., 5 miles west of White Salmon, in southeastern Skamania Co. Wash. Geol. Surv. Bull. 17: 160. 1917 Map 20, T. 3 N., R. 10 E.

Huckleberry Mountain. See *Heidelberg*

Husum. A town on the White Salmon River above the falls, about 8 miles north of White Salmon, in southwestern Klickitat Co. Wash. Geol. Surv. Bull. 17: 164. 1917. Map 11, T. 4 N., R. 11 E.

Ice Cave. See *Eishöhle.*

Indian Creek. A small creek in the Chiquash Mts., near the "Seenberg," and probably in the "Indian Heaven" country just north of Gifford Peak. Map 20, T. 6 N., R. 8 E.

Jacobsen. A farmer at Bingen.

Johnson. A farmer on Hog Prairie, on Bingen Mountain, at Bingen.

Johnson's Ferry. A ferry on the north fork of the Nooksack River in Whatcom Co.

Juniper Mountain. See *Wacholderberg.*

Kahlenberg. Little Baldy Peak, on the east bank of the Little White Salmon River in southeastern Skamania Co., 6 miles north of Cook. Map 20, T. 4 N., R. 9 E. Suksdorf also used the name "Kahlenberg" or "Bald Hill" to designate a hill 2 miles northwest of White Salmon, on the east side of the White Salmon River. In such cases, a careful check of the itinerary will distinguish the two localities.

Kahlenberg-Schlucht. A small rocky canyon a few miles northwest of Bingen.

Kamiak Butte. A conspicuous hill about 10 miles north of Pullman, in east central Whitman Co. Map 27, T. 41 N., R. 45 E.

Keulfall. A waterfall in a small canyon on the east side of Bingen.

Kelly. A farmer in Falcon Valley.

Kerfensee. One of the numerous small lakes in the Chiquash Mountains of eastern Skamania Co., north of the Indian Race Track. An accurate translation of the name has not been found, but Theodor Suksdorf suggests that "Kerfen" is a name for a kind of water beetle.

King Mountain. See *Königsberg*

Kirkland. A town on the east shore of Lake Washington, opposite the north end of Seattle, in northwestern King Co. Wash. Geol. Surv. Bull. 17: 174. 1917. Map 29, T. 25 N., R. 5 E.

Klee-thal (Clover Vale). A small valley on the southeast slope of Mt. Adams, in the vicinity of the Bird Creek Meadows.

Klickitat. A town on the S P. & S R. R. (Goldendale Branch), 14 miles northeast of Lyle, in west central Klickitat Co. Wash. Geol. Surv. Bull. 17: 174. 1917. Map 9, L-9.

Klickitat-Berge. A mountain ridge north of Rockland, in south central Klickitat Co.

Klickitat Glacier. A glacier on the southeastern slope of Mt. Adams, in southwestern Yakima Co. Wash. Geol. Surv. Bull. 17: 175. 1917. Suksdorf called the glacier "Donnergletscher" Map 14.

Klickitat River A river in western Yakima and Klickitat counties, entering the Columbia River at Lyle. Suksdorf collected at three points along the Klickitat River (1) on the east slope of Mt. Adams in Yakima Co., (2) at the north edge of Falcon Valley in Yakima and Klickitat counties, and (3) near the mouth of the river north of Lyle. Map 11.

Kohlberg Apparently the mountain (elev. 3000 ft.) just north of Cabbage Creek, a western tributary of the Little White Salmon River about 8 miles north of Cook, in southeastern Skamania Co. Map 20, T. 4 N., R. 9 E.

Köhlthal A small burned-over valley in the Chiquash Mts. of east central Skamania Co., some miles west of Trout Lake.

Königsberg (King Mountain) A mountain in the Chiquash range in east central Skamania Co. A scrap of paper found in Suksdorf's notes reads as follows "Seenberg und Kraterberg dabei, Königsberg und Paddo, alle liegen in eine Linie." If a line is drawn from the summit of East Crater to the summit of Mt. Adams (Paddo), four peaks are ranged along it in the following order: Gifford Peak, East Crater, Lemei Rock, and Mt. Adams. Since Suksdorf referred to "Seenberg" as "the mountain west of the six lakes," it is obvious that "Seenberg" is synonymous with Gifford Peak. It is then apparent that "Kraterberg" is East Crater, and that "Königsberg" is Lemei Rock. "Königsberg" is definitely not the King Mountain (see "Breitenberg") south of Mt. Adams in southwestern Yakima Co. See Map 31, T. 6 N., R. 9 E.

Kraterberg. East Crater, a 5,200-ft. peak in the Chiquash Mts. of east central Skamania Co., 12 miles west of Trout Lake. See "Königsberg" Map 31, T. 6 N., R. 8 E.

Kressenberg A mountain west of Husum, in west Klickitat Co.

Krummelberg A butte on the east or northeast slope Mt. Adams, in southwestern Yakima Co. Also called "Krümmelfelsen."

Kuhblumenquelle (Cowslip Spring) A spring on the southeast slope of Mt. Adams.

Kuhleborn A cold spring in Falcon Valley, on the southeast 160 acres of Section 31 north of Fulda, in northwestern Klickitat Co. This is not to be confused with the Cold Spring on Mt. Adams. The latter always appears in Suksdorf's notes accompanied by the letter "P," signifying Mt. Paddo (Adams).

Knuss Quigley Butte, an extinct crater about 3 miles north of Laurel, elev. about 1100 feet above Camas Prairie. The word is Indian, meaning "high elevation." Map 11, T. 6 N., R. 11 E.

Ladiges Pioneer family of Camas Prairie.

Lake River The outlet of Vancouver Lake, on the floodplain of Columbia River, north of Vancouver, in Clarke Co. Wash. Geol. Surv. Bull. 17: 177, 1917. Map 26, T. 3 N., R. 1 E.

Lake Washington. A lake about 20 miles long, with an average width of 2 miles, 6 miles east of Puget Sound, in northwestern King Co. Wash. Geol. Surv. Bull. 17: 293, 1917. Map 29, T. 25 N., R. 4 E.

Lake Whatcom. A large lake east of Bellingham in southwestern Whatcom Co. Map 28, n e ¼.

Langenbluff A rocky bluff in woods along the west branch of the White Salmon River ("Dornbach"), on the southwest side of Mt Adams, just west of Stagman Ridge. Map 31, 46° 8' N Lat, 121° 38' W Long.

Larm Glätscher See *White Salmon Glacier*

Larm River See *White Salmon River*

Latah Creek A stream of south central Spokane Co, flowing northwestward and joining the Spokane River at Spokane Wash Geol Surv Bull. 17 179. 1917 Map 23, T 23 N, R. 43 E.

Laulithal or *Laulthalbthal* A small valley in or very close to Bingen A translation of "Lauli" has not been found, but the name is probably an Indian one referring to some plant which was conspicuous in the valley Laulibach, the stream which runs through this valley, may be identical with Steinbach

Lavabed Creek An eastern tributary of the Little White Salmon River, arising in the Big Lava Bed and entering the Little White Salmon River at Willard, in southeastern Skamania Co Map 20, T 4 N, R 9 E.

Liberty Lake A lake 2 miles long, east of Spokane, near the state line, in east central Spokane Co Wash Geol Surv Bull 17 182 1917 Map 30, T 25 N, R 45 E, Sect. 23

Lewis River A large river flowing west from Pinnacle Glacier on the west slope of Mt. Adams in east central Skamania Co All of Suksdorf's collections along the river were made in the immediate vicinity of Mt. Adams Map 31

Lippenberg The mountain north of the "Knuss," hence Shaw Mountain of Map 14, T 7 N, R 11 E (Meadow Butte of Map 11) in northwestern Klickitat County.

Little Huckleberry Mountain See *Heidelberg*

Little Klickitat River An eastern tributary of the Klickitat River in central Klickitat Co, west of Goldendale

Little Prairie A small opening of about 30 acres on the road from Gilmer to Camas Prairie, in west Klickitat Co.

Little White Salmon River A northern tributary of the Columbia River in southeastern Skamania Co Wash Geol Surv Bull 17 184 1917 Map 20

Lower Cascades The west terminus of a six-mile railroad on the north side of the Columbia River, which carried freight past the treacherous and unnavigable Cascades of the Columbia River, in south central Skamania Co

Luchsenbach (*Lynx Creek*) A creek on the east slope of Mt Adams, probably in Donner's Vale.

Lyle A town on the Columbia River and the S P. & S R R, in southwestern Klickitat Co Wash Geol Surv Bull 17 188 1917 Map 11, T 2 N, R. 12 E.

Lynx Creek See *Luchsenbach*

MacMahon's Sawmill A now-abandoned mill on Hangman Creek east of

- Spangle, in eastern Spokane Co. Map 23, T. 22 N., R. 44 E., Sect. 8 (according to Miss Helga Suksdorf).
- Major Creek** (*Mayor Creek* of some maps). A tributary of the Columbia River from the north, west of Lyle, in southwestern Klickitat Co. Wash. Geol. Surv. Bull. 17: 192. 1917. Map 11, T. 3 N., R. 12 E. The source of Major Creek is near the John Perry place about 8 miles from its mouth.
- Maple Creek**. The outlet of Fish Lake, at Maple Falls, in north central Whatcom Co. Wash. Geol. Surv. Bull. 17: 193. 1917. Map 12, T. 40 N., R. 6 E.
- Marshall**. A town on the N. P. R. R., about 9 miles southwest of Spokane, in central Spokane Co. Wash. Geol. Surv. Bull. 17: 194. 1917. Map 30, T. 24 N., R. 42 E., Sect. 22.
- Mattenhalde** Either a part of Wodan's Vale or of the slope to the east, on the south side of Mt. Adams.
- McLeod Lake** (*McCloud Lake* of Suksdorf's notes). An earlier name for Green Lake. See *Green Lake*.
- Medley**. A pioneer Camas Prairie settler. For other Camas Prairie pioneers, see Ballou, *Early Klickitat Valley Days*, p. 457.
- Mico Peak**. A peak 16 miles southeast of Spokane, in east central Spokane Co. Map 30, T. 24 N., R. 45 E.
- Miles**. A farmer on Rattlesnake Creek.
- Mimelquelle** (*Mimulus Spring*) A spring on Bingen Mountain.
- Moore** A farmer in Falcon Valley.
- Moosbach** See *Moss Creek*.
- Morgan's Ferry**. A ferry across the Yakima River at Mabton, in southeastern Yakima Co. "The pioneer families in the [Sunnyside] district were those of Jock Morgan and John Ferrell, who lived 5 or 6 miles from Sunnyside toward Mabton. . . . During the early years of Sunnyside's history, travellers crossed the Yakima River at Mabton, the nearest railroad station, on a scow ferry operated by Jock Morgan." History of Klickitat Co., etc., pp. 222-223.
- Moss Creek** A western tributary of the Little White Salmon River about 6 miles north of Cook, in eastern Skamania Co. Map 20, T. 4 N., R. 9 E.
- Mount Hamilton** A mountain 4 miles west of Cascades, in southwestern Skamania Co. Wash. Geol. Surv. Bull. 17: 153. 1917. Map 20, T. 2 N., R. 6 E.
- Mummelnesen** (*Water Lily Meadows*) A swampy meadow in the Chiquash Mts., near the "Seenberg" (Gifford Peak).
- Newman Lake**. A lake $2\frac{1}{2}$ miles long in east central Spokane Co., near the state line. Wash. Geol. Surv. Bull. 17: 209. 1917. Map 30, T. 26 N., R. 45 E., Sect. 3.
- Nooksack River** A river in Whatcom Co. Suksdorf's collections were mainly along the north fork, near Mt. Baker.
- Oakesdale** A town on the N. P. R. R. and the line of the O.-W. R. R. & Nav. Co., 4 miles south of Spokane in northeastern Whitman Co. Wash. Geol. Surv. Bull. 17: 212. 1917. Map 23, T. 19 N., R. 44 E., Sect. 22.
- Oak Mountain** See *Eichberg*

- Padden Lake** A lake about 1 mile long, south of Bellingham, and east of Lake Chuckanut, in southwestern Whatcom Co Wash Geol Surv Bull 17 218 1917 Map 28, T 37 N, R. 3 E, Sects 8, 17
- Paddo** The Indian name for Mt Adams This name was used commonly by the Indians to indicate any snow-capped peak. According to Suksdorf, the word comes from the Klickitat "Pa-to," meaning "high up" See Mazama 1 68 1896.
- Palmer** A farmer at Bingen.
- Panakanic** or **Panickanick** A small valley at the head of Rattlesnake Creek about 16 miles north of Lyle Map 11, T 5 N, R 12 E
- Pasco** A town at the junction of the Columbia and the Snake Rivers, the county seat of Franklin Co Wash Geol Surv Bull 17 221 1917 Map 25, T. 9 N, R 30 E
- Patterson's Ranch** A ranch in southeastern Yakima Co, a few miles north of Bickleton
- Perry, John** An early settler in west Klickitat Co His homestead was 4 miles northeast of Pine Flat post office, 13 miles northeast of White Salmon, in west Klickitat Co Hist of Klickitat Co, etc, p 520
- Peters Prairie** A prairie in east central Skamania Co, just west of the Ice Cave. It appears on Map 20, T 6 N, R 9 E, as Peterson Prairie
- Philleo Lake** A lake 1 mile long, 3 miles southwest of Spangle, in south central Spokane Co Wash Geol Surv Bull 17 224 1917 Map 23, T 22 N, R 42 E, Sect. 1, 12
- Pitman's Ranch** A ranch in the Simcoe Mts along the road between Goldendale and Bickleton, in north central Klickitat Co
- Poa-felsen (Poa Rocks)** Part of the "Wodanthal"
- Poterium-bach (Burnt Creek)** A creek in the Chiquash Mts, probably near Steamboat Mountain
- Prachtwald (Magnificent Forest)** A forest in the vicinity of Yet Creek, Peters Prairie, and Ice Cave, in the Chiquash Mts
- Prindle** A station on the C M. & St P R R, 16 miles west of Stevenson, in southwestern Skamania Co Wash Geol Surv Bull 17 230 1917 Map 11, T. 1 N, R 5 E
- Pullman** A town in southeastern Whitman Co, the home of the State College of Washington Map 27, T 14 N, R 45 E
- Randall's Ranch.** See *Reynold's Ranch*
- Rattlesnake Creek** A tributary of the lower White Salmon River from the northeast, in western Klickitat Co Wash Geol Surv Bull 17 234 1917 Map 11, T 4 N, R. 11 E.
- Reither** A farmer on the bottomlands at Bingen
- Reynold's Ranch** A ranch in west Klickitat Co at what used to be Guler's post office This locality occasionally appears on Suksdorf's sheets as Randall's Ranch, but Theodor Suksdorf regards this as an error
- Riedgrasfelsen (Calamagrostis Rocks)** Part of the "Wodanthal"
- Rock Creek** near Mica Peak A stream in Spokane and Whitman counties, joining the Palouse River, from the north, about 6 miles west of Winona.

- Wash. Geol. Surv. Bull. 17: 240. 1917. Map 23, T. 23 N., R. 44 E. See also *Mica Peak*
- Rock Creek* near Stevenson. A northern tributary of the Columbia River near Stevenson, in south central Skamania Co. Wash. Geol. Surv. Bull. 17: 240. 1917. Map 20, T. 3 N., R. 7 E.
- Rockland*. An early name for Grand-Dalles. According to Theodor Suksdorf, Rockland is now Dallesport. This is substantiated by Ballou, Early Klickitat Valley Days, p. 406.
- Rosalia*. A town on the N. P., C. M. & St. P., and S. & I. E. railroads, 36 miles south of Spokane, in north central Whitman Co. Wash. Geol. Surv. Bull. 17: 241. 1917. Map 23, T. 20 N., R. 43 E., Sect. 15
- Rothegel* Little Mount Adams, a red, volcanic cone on the southeast side of Mount Adams, on the ridge north of the "Wodanthal" Map 14, 46° 10' N. Lat., 121° 25' W. Long.
- Rundwiese*. A meadow on the southeast side of Mount Adams, probably in the "Wodanthal".
- Rundersee* A small lake in the Chiquash Mts.
- Rush Creek* See *Seggenbach*.
- Salmon Creek* A creek in southwestern Clark Co., flowing into the Columbia River about 2 miles north of Vancouver Lake Map 11, T. 3 N., R. 1 E.
- Samish Lake*. A lake about 4 miles long, 6 miles southeast of Bellingham, in southwestern Whatcom Co. Wash. Geol. Surv. Bull. 17: 246. 1917. Map 28, T. 37 N., R. 3 E.
- Sand Island* A low island in the Columbia River south of Ilwaco, in southwestern Pacific Co. Wash. Geol. Surv. Bull. 17: 246. 1917. Map 9, K-3.
- Schmetterling*-See See *Butterfly Lake*
- Schneeback* An intermittent stream near the Ice Cave This creek appears on Map 20, T. 6 N., R. 10 E., as Cave Creek, and it flows northeast into Klickitat Co., from a point about one mile southeast of the Ice Cave.
- Schönberg (Beautiful Mountain)* Sleeping Beauty Mountain, a 5,076-ft peak resembling the reclining figure of a beautiful woman, in east central Skamania Co., 11 miles southwest of the summit of Mt. Adams. Map 20, T. 7 N., R. 10 E.
- Schräglefluh (Sloping Precipice)* Cliffs at the base of Bingen Mountain.
- Schwingebruck (Festuca Ridge)* A part of Stagman Ridge, on the west side of the east fork of the White Salmon River near its source on the southwest slope of Mt. Adams, in east central Skamania Co. Map 31, T. 8 N., R. 10 E.
- Seenberg* A mountain in the Chiquash range, so named from the numerous lakes which nestle on its northeast slope. Suksdorf sometimes referred to this as "the mountain west of the six lakes." Seenberg is Gifford Peak on Map 20, T. 6 N., R. 8 E. See *Königsberg*.
- Seggenbach*. A small creek on the east side of Mt. Adams; elev. 1400 m "Seggenbach" appears to be in Donner's Vale.
- Seggenquelle* Apparently the source of "Seggenbach."
- Sehome*. A town on Bellingham Bay, just south of Whatcom, in western Whatcom Co. In 1883, Sehome became New Whatcom. It consolidated with Fair-

- haven in 1903 under the name of Bellingham. See Lottie Roeder Roth, History of Whatcom Co. (Seattle, 1926), p 957 Schome was the name of a sub-chief of the Clallam tribe of Indians
- Simcoe Mountains* Mountains on south central Yakima and north central Klickitat counties See Map 9
- Sindersee* A small lake in the Chiquash Mts, north of the Indian Race Track This is one of the numerous nameless lakes in the Indian Heaven country near Gifford Peak. See Map 20, T 6 N, R. 8 E.
- Skamania* A town on the Columbia River, one mile west of Beacon Rock, in south central Skamania Co Map 13, T 2 N, R 6 E
- Snow Creek.* See *Schneebach*.
- Snowden* A post office about 15 miles northwest of Lyle, in west central Klickitat Co Wash Geol. Surv Bull 17 260 1917 Map 11, T 4 N, R 11 E.
- South Prairie* A marshy meadow area on the eastern border of the Big Lava Bed, 4 miles southwest of Peterson Prairie Ranger Station, in east central Skamania Co Suksdorf called a part of South Prairie "Gerstenwiese" (Barley Meadow) It is possible that "Wollwiese" (Woolgrass Meadow) is also a part of South Prairie For South Prairie, see Map 20, T 5 N, R. 9 E
- Spangle* A town on the N P R R., 20 miles south of Spokane, in south central Spokane Co. Wash Geol. Surv. Bull. 17 262 1917 Map 23, T 22 N, R. 43 E., Sect. 4 Detler Suksdorf's farm is about 3 miles southeast of Spangle. Map 23, T 22 N, R 43 E., Sect 15
- Spokane Bridge.* A station on the C M & St. P R R., 18 miles east of Spokane, in east central Spokane Co Wash Geol Surv Bull. 17 263 1917 Map 30, T 25 N, R. 45 E., Sect. 1
- Stoach, Peter.* A pioneer Camas Prairie settler.
- Stadelmann* An early settler who lived $1\frac{1}{2}$ miles south of Trout Lake, in north-western Klickitat Co. Hist. of Klickitat Co, etc, p 524
- Staley.* A station on the N. P. R. R., 5 miles south of Pullman, in southeastern Whitman Co. Wash Geol Surv Bull. 17 266. 1917 Map 27, T 14 N, R. 45 E.
- Steamboat Lake* A small lake (20 acres) southeast of Steamboat Mountain, in east central Skamania Co Map 31, T 8 N, R 8 E.
- Steinbach* A small creek running through the canyon on the west slope of Bingen Mountain, at Bingen.
- Strat, Dave* A farmer who lived under Bingen Mountain
- Sumpfsquelle* A swampy spring in Falcon Valley
- Surterberg.* A butte on the east side of Mt Adams, near Wodan's Vale, and apparently identical with "Grasberg "
- Swan Hamann's Spur* A station on the S. P & S. R. R., 4 miles west of Lyle, in southwestern Klickitat Co Wash Geol Surv Bull 17 272. 1917
- Tams, Peter.* An early settler at Camas Prairie
- Thorn Creek.* See *Dornbach*.
- Timberschlucht (Timber Canyon).* A canyon a mile or so northwest of Bingen, and not Timber Valley near the Klickitat River, northeast of Bingen.

Tröh. First settlers at Camas Prairie (1878).

Trout Creek The stream which feeds Trout Lake.

Trout Lake A small lake in the northwest corner of Klickitat Co., about 23 miles north of White Salmon. Map 20, T 6 N, R 10 E

Trout Lake Valley The valley of Trout Creek and Trout Lake, in northwest Klickitat Co and east central Skamania Co

Trummerthal (Breccia Vale) Probably the long tongue-shaped lava flow on the south side of Mt. Adams Map 14, T 7 N, R. 11 E.

Underwood A town on the S P & S R R, at the mouth of the White Salmon River, 3 miles west of White Salmon, in southeastern Skamania Co. Wash Geol Surv Bull 17 286 1917 Map 20, T 3 N, R 10 E.

Union Lake A lake about 3 miles long, in Seattle, between Lake Washington and Puget Sound, in northwestern King Co Wash Geol Surv Bull 17 287 1917 Map 29, T 25 N, R 4 E

Vancouver The county seat of Clark Co, located in the southern part of the county, on the Columbia River opposite Portland, Ore Wash. Geol. Surv Bull 17 288. 1917 Map 26, T 2 N, R. 1 E

Vila A station on the S. P & S. R R, 5 miles west of Lyle, in southwestern Klickitat Co Wash Geol Surv Bull 17 289 1917 Map 9, M-9

Wacholderberg (Juniper Mountain) A mountain near the Indian Race Track, in the Chiquash Mts. Suksdorf also called this "Asterberg" These names refer to either Berry Mountain or Red Mountain, both a few miles north of the Indian Race Track. See Map 20, T 5 N, R. 8 E.

Wahclella. A village one mile west of Beacon Rock on the Columbia River in south central Skamania Co. Map 11, T 2 N, R 6 E.

Wahstamm Lake See *Butterfly Lake*

Wallula A town on the Columbia River at the mouth of the Walla Walla River, and on the N P R R and the line of the O-W R R & N Co, 31 miles west of Walla Walla, in southwestern Walla Walla Co Wash Geol. Surv. Bull 17 292 1917. Map 9, K-15.

Warm Spring A spring along the Klickitat River near Falcon Valley

Waverly A town on the S & I E. R R, 34 miles southeast of Spokane, in southeastern Spokane Co Wash Geol Surv Bull 17 295 1917 Suksdorf also collected at Waverly in Middlesex Co, Mass, while studying at Gray Herbarium in 1887. Waverly, Spokane Co, may be found on Map 23, T 21 N, R. 44 E., Sect. 3

Weidesee (Willow Lake) One of the small lakes in the Chiquash Mts, north of the Indian Race Track. Willow Lake is near Butterfly Lake

Wetterburg A weather station or ranger station in the Chiquash Mts, northwest of Trout Lake.

Whatcom See *Sehome*.

Whatcom Lake See *Lake Whatcom*.

White Bluffs. A town on the Columbia River in northeastern Benton Co Map. 19, T 14 N, R. 27 E.

White Salmon A town on the bluff above Columbia River just northwest of Bingen, in southwestern Klickitat Co. See *Bingen*.

White Salmon Glacier. A glacier on the west slope of Mt. Adams, in southwestern Yakima Co Wash Geol Surv Bull 17 298 1917 Map 31, T 8 N, R. 10 E Suksdorf called this the "Larm Gletscher"

White Salmon River. A river arising from the snows of the White Salmon Glacier on the west slope of Mt. Adams and flowing south through eastern Skamania and western Klickitat counties, entering the Columbia River at Underwood Suksdorf called this river the "Larm [noise] river" Map 11

Wiesehalde A meadowy slope on the southeast side of Mt Adams, in the "Wodanthal"; elev 2000 m Suksdorf's regular campground was on the "Wiesehalde."

Wilken A farmer in Falcon Valley

Wilkinson's Ranch A ranch in the Klickitat Valley, probably on High Prairie.

Willard A post office on the Little White Salmon River, 8 miles north of Cook, in southeastern Skamania Co Wash Geol Surv Bull 17. 300 1917 Map 20, T 3 N, R 10 E.

Willow Lake See "Weidesee"

Wind Mountain A mountain on the north shore of the Columbia River, 1 mile east of Home Valley, in south central Skamania Co Wash Geol Surv Bull 17 302 1917 Map 20, T 3 N, R 8 E.

Wintersee A lake on the Detlef Suksdorf property, about 5 miles southeast of Spangle. This is the "Am See" referred to on many of Suksdorf's Spokane Co labels The lake is a popular ice-skating rink in the wintertime, hence the name "Winter Lake" It is also known as Muskrat Lake. Map 23, T 22 N, R 43 E.

Wiser Lake or *Weiser Lake* A lake 1 mile long, 2½ miles southwest of Lynden, in northwestern Whatcom Co Wash Geol Surv Bull 17 303 1917 Map 32, T 39 N, R. 3 E, Sect 6

Wittenberg One of the mountains in the Chiquash range Identical with "Heidelberg"

Wodan's Canyon. The eastern end of Wodan's Vale

Wodan's Vale See *Wodanthal*

Wodanthal A small valley at the base of the Mazama Glacier, on the southeast slope of Mt Adams, in southwestern Yakima Co, Suksdorf's favorite collecting ground on Mt Adams Theodor Suksdorf read a description of this little valley at a Chamber of Commerce banquet His words are quoted here

"At the source of what is called the Little Muddy, and below the Mazama Glacier, is a little valley not more than 40 rods wide anywhere, and not more than half a mile long and comparatively level

"Two glacier streams, one on either side, run full length of the valley; then there is a drop of a hundred feet, creating two pretty waterfalls. The valley was covered with clumps of small trees, a little placid lake, meadows, and all kinds of flowers On both sides, the mountain rises to a thousand feet; on the upper end is the Mazama Glacier, and above towers Mt Adams.

"Probably at a time when the masses of the glacier had their source

way down to the Klickitat, this canyon was cut out of the solid rock; now the glacier never comes to the valley, within a thousand feet.

"On the south side, the slope of the mountain is heavily timbered; the north slope is nearly bare; only such plants grow here as can stand some drought

"When I first saw this valley in 1881, it looked to me like a little paradise. Here we found the marmot and other alpine animals, also the mountain goat, the mazama, near the snow line. I was there again in 1888 but saw little change.

"My brother Wilhelm, a well-known botanist of the northwest, camped here every year when he went to Mt. Adams to gather botanical specimens. When camping here at night, he heard the breezes whisper in the tall trees, the waters of the stream murmur, the mild roar of the waterfall, a thundering from the mountain, crashing, cracking, the gushing of water—the Mazama Glacier at work reducing the mountain that was built by fire.

"My brother heard and saw all these beauties and he named this little valley 'Wodan's Vale.' You know, Wodan was a god of the Germans; therefore the name would mean 'the valley of the god.'

"A few years passed. These valleys and hills were invaded by sheep and their herders, this valley was no exception. The flowers disappeared; the grass and plants were cut short, the marmot and other animals could not find vegetation enough to supply them during the long winter and starved; the mazamas were killed off; desolation and destruction everywhere; and the little valley at the foot of Mt. Adams, once the valley of the god, is now called 'Hell-Roaring Canyon.'"

Wolhwise See *South Prairie*.

Yes Creek A small creek "some miles south of the Ice Cave," "some miles west of Peters Prairie," and "near Butterfly Lake." "Yei" is the Indian name for *Xerophyllum tenax*.

York A farmer in Falcon Valley.

Zahnberg. A mountain northwest of Chenoweth and near Lavabed Creek. It is not clear to which mountain this name refers. Shingle Mountain, Map 20, T 4 N., R. 9 E., is a likely guess.

Zaunkönigwiese (Wren Meadow). A small meadow on the southeast slope of Mt. Adams, probably along Bird Creek.

Zungelfluh. Cliffs at Bingen.

REFERENCE MAPS

A. General

1. California, Indexed Pocket Map and Shipper's Guide of Rand-McNally & Co. 1911.
2. California, Willits and Fort Bragg to Eureka. California State Automobile Ass'n. San Francisco, Cal. Undated.
3. Montana, Indexed Pocket Map and Shipper's Guide of. Rand-McNally & Co 1911.

4. Oregon, State of. Rand-McNally Commercial Atlas and Marketing Guide, 69th edition, p 326. 1938.
5. Oregon, State of Rand-McNally Enlarged Business Atlas, p 356 1901
6. Oregon, State of Rand-McNally New Standard Atlas of the World, p 170 1890.
7. Washington, Clarke County. Capital City Map and Blueprint Co , Olympia, Wash. Undated.
8. Washington, Indexed Pocket Map and Shipper's Guide of Rand-McNally & Co 1916.
9. Washington, State of National Map Co , Indianapolis, Indiana Undated (pop according to 1930 Federal Census).
10. Washington, State of Rand-McNally New Standard Atlas of the World, pp 168-169 1890.

B National Forest Maps, published by the U S D A , Forest Service

11. Columbia National Forest. 1924
12. Mount Baker National Forest 1935
13. Mount Hood National Forest 1931

C Topographic Atlas Sheets or Quadrangles, surveyed and printed by the U S Geological Survey

14. Adama, Mount. Ed of March, 1907, reprinted June, 1913
15. Arlington. Ed of 1916.
16. Blaine. Ed of 1907, reprinted 1922
17. Connell. Ed. of 1918.
18. Dalles, The Ed of 1934
19. Hanford Ed. of 1924
20. Hood River Ed of 1929.
21. Little Belt Mountains (Mont) Ed of 1902, reprinted 1918.
22. Livingston (Mont.) Ed of July, 1893, reprinted 1934
23. Oakesdale Ed of 1905, reprinted 1917
24. Oregon City Ed of June, 1914, reprinted 1920.
25. Pasco. Ed. of 1917.
26. Portland. Ed. of July, 1905, reprinted 1921.
27. Pullman Ed. of Dec., 1910, reprinted 1936.
28. Samish Lake Ed of 1918.
29. Snohomish. Ed of Oct., 1897, reprinted 1918.
30. Spokane. Ed of May, 1901, corrected March, 1911, reprinted May, 1915
31. Steamboat Mountain Ed of 1931.
32. Sumas. Ed. of Aug , 1908.

MISCELLANEOUS SOURCE MATERIAL

- Ballou, Robert. *Early Kluckitlat Valley Days*. Goldendale (Wash) Sentinel 1938.
- Carter, E. A. *Suksdorf, Pioneer Botanist* American-German Review 8 (4) . 11-12. 1942.

Interstate Publishing Co. *Illustrated History of Kluckitlat, Yakima, and Kittitas Counties* Chicago. 1904.

Jones, M. E. *W N Suksdorf* Contr. West. Bot. 18. 19 1932

Landes, Henry *A Geographic Dictionary of Washington*. Wash Geol. Surv Bull 17 1917.

Pickett, F. L. *W N Suksdorf, Pioneer Botanist of Washington* Northwest Science 9 (4): 13-16 1935.

Roth, L. R. *History of Whatcom County* Pioneer Publishing Co, Seattle 1926.

VI. LIST OF THE SCIENTIFIC WRITINGS OF WILHELM N. SUKSDORF

1892

1. Flora Washingtonensis. A catalogue of the phaenogamia and pteridophyta of the state of Washington. 15 pp. White Salmon.

1896

- 2 The flora of Mount Adams. Mazama 1: 68-97. Thomas Howell, co-author

1897

3. Die Plectrideen. Deutsche Bot. Monatss. 15: 116-119, 144-148.

1898

4. Key to the species *Plectritis* and *Aligera*. Erythea 6: 21-24.
- 5 Washingtonische Pflanzen Deutsche Bot. Monatss. 16: 209-212, 220-222

1900

6. Washingtonische Pflanzen. Deutsche Bot. Monatss. 18: 26-27, 86-88, 97-99, 132-134, 153-156.

1901

7. Washingtonische Pflanzen. Deutsche Bot. Monatss. 19: 91-93.
8. Zwei neue einjährige *Epilobium*-Arten. West. Am Sci. 11: 77-78.
9. Zwei neue kalifornische Pflanzen West. Am Sci 12: 53-55.

1902

- 10 Eine neue *Brodiaea*-Art West Am Sci. 14: 1-4.

1903

11. Ueber einige *Nemophila*-Formen. West Am. Sci 14: 31-33.

1906

12. Neue Pflanzen aus Washington. West. Am. Sci. 15: 58-61.
13. Washingtonische Pflanzen II. Allg. Bot. Zeits. 12: 5-7, 26-27, 42-43.
- 14 Zwei neue oregonische Pflanzen West Am. Sci. 15: 50.

1914

- 15 Is *Arenaria lateriflora* dioecious? Rhodora 16: 55-56.

1918

16. *Cardamine oligosperma* and its near allies. *Rhodora* 20: 197-199.

1923

17. A new saxifrage from Oregon. *Torreya* 23: 106-107.
 18. Eine neue Weide aus dem Staate Washington. *Oesterr. Bot. Zeits.* 72: 94-95.
 19. Werdenda, Beitrage zur Pflanzenkunde (Foreword). Vol. 1, No. 1. Bingen, Wash.
 20. Washingtonische Pflanzen III. Werdenda 1: 1-14
 21. *Xerophyllum tenax*. Bingen (Wash.) Herald, p. 1, July 26.
 22. Botanist Gives Facts. Bingen (Wash.) Herald, pp. 1-2, Sept. 13.
 23. On Geographical Names Bingen (Wash.) Herald, pp. 1-2, Sept. 27; pp. 1-2, Oct. 4; pp. 1, 4, Oct. 11.
 24. Bladderworts. Bingen (Wash.) Herald, p. 3, Oct. 25.

1927

25. Washingtonische Pflanzen IV. Werdenda 1: 15-43.
 26. Ueber einige Plectrideen Werdenda, 43-44.
 27. Abrams' Illustrated Flora of the Pacific States (a review). Werdenda, 44-45.

1931

28. Untersuchungen in der Gattung *Amsinckia* Werdenda 1: 47-113.

THE THEME OF DESERTION IN WORDSWORTH

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It has been twenty-three years since Professor Harper revealed to the scholarly world that Wordsworth, when he visited France in 1791-92, espoused more than the French Revolution.¹ Although students of Wordsworth faced the facts manfully, and there has been a resurgence of Wordsworthian scholarship, one problem pointed up by the disclosure has been practically ignored. The problem concerns the significance of Wordsworth's preoccupation with the theme of desertion during the seven years following his desertion of Annette Vallon.

There is no doubt that the theme engrossed his attention. Between 1793 and 1799 Wordsworth wrote seven poems dealing with desertion. In the forty-eight years of poetical composition which followed 1799, he never again employed the theme, nor had he done so in the eight years preceding the writing of the first poem in this group. The fascination of the theme is clearer when we consider what proportion of Wordsworth's output for the years 1793-99 these poems constitute. "The Female Vagrant,"² the first poem Wordsworth composed after deserting Annette and the first of the group under consideration, was the only poem Wordsworth wrote in 1793-94.³ *The Borderers* and "The Ruined Cottage," the second and third in the group, are two of the three poems ascribed to 1795-96. Neither of the two poems dated 1797 belongs to the group. Of the nineteen poems dated 1798, three employ the theme of desertion. Of the nineteen dated 1799,⁴ one does. Thereafter the theme disappears.

There is some evidence that the failure to investigate Wordsworth's use of this theme is not an oversight, for both De Selincourt and Harper reveal an awareness of it. De Selincourt refers in a footnote to Wordsworth's "sympathetic penetration into the heart of the deserted woman . . . which is a marked feature of his poetry from 1795 to 1805."⁵

¹ George McLean Harper, *Wordsworth's French Daughter* (Princeton, N. J., 1921).

² This is the title under which the poem appeared in the first edition of the *Lyrical Ballads*. Before the end of 1794, however, it had been expanded into the poem which in 1842 appeared as *Guilt and Sorrow*.

³ Wordsworth dates this poem 1791-94. Harper says it dates "chiefly from 1793 and 1794" (*William Wordsworth*, 3rd ed. [New York, 1929], p. 160).

⁴ During this year also parts of the *Prelude* were written.

⁵ Ernest de Selincourt, ed., *The Prelude* (Oxford, 1926), p. 573.

Harper makes oblique reference to it by pointing out that Wordsworth more than once applied himself to the study of seduction and by bringing together into one paragraph the titles of five of the seven poems which employ the theme of desertion.⁶ But he makes no reference to the autobiographical implications of these poems or to what they reveal of Wordsworth's state of mind. Legouis does not comment on the persistence of the theme, but his failure to do so is not surprising, for his *Early Life of Wordsworth* was published many years before he and Harper discovered the facts about Annette and her daughter, Caroline. It is Legouis's *Life*, nevertheless, which suggests the method and supplies the sanction for an attempt to reveal something of the state of Wordsworth's mind between 1795 and 1799 by a study of a group of poems which develop a common theme and which were written during these years. A poem outside this group ("Vaudracour and Julia"), written about eight years after the Annette episode and five years after the last poem in this group, has long been admitted to possess biographical significance. These poems, I believe, are similarly valuable in revealing something of the impact of that emotional crisis on Wordsworth's mind—an account of which the poet deliberately omitted from the *Prelude*. Specifically, then, this article aims to examine a group of seven poems, written between 1793 and 1799, which employ the theme of desertion, and to ascertain what they reveal of Wordsworth's state of mind during these years.

As background, it may be helpful to recount Wordsworth's movements during the years he was writing these poems and the year preceding the writing of the first one. The poet left England for his second visit to France in November, 1791.⁷ After spending only four or five days in Paris, he proceeded to Orleans, where he met Annette Vallon.⁸ In the spring he removed to Blois,⁹ Annette's home. The child who became Caroline Wordsworth was conceived about the middle of March.¹⁰ Before she was born, her father had left for England.¹¹ It is not unlike-

⁶ Harper, *William Wordsworth*, p. 290.

⁷ Harper, *Wordsworth's French Daughter*, p. 13.

⁸ In *Wordsworth's French Daughter* (p. 13), Harper gives the time as five days, but in *William Wordsworth* (p. 93) as four days.

⁹ Harper, *Wordsworth's French Daughter*, p. 13.

¹⁰ She was born December 15, 1792 (Harper, *William Wordsworth*, p. 126).

¹¹ A week after the birth of Caroline, Dorothy wrote an unknown correspondent that William was in London (Ernest de Selincourt, ed., *The Early Letters of William and Dorothy Wordsworth* [Oxford, 1935], p. 82). Moreover, the certificate of baptism (dated the day of Caroline's birth) indicates that the father was not present (Harper, *William Wordsworth*, p. 126).

ly that he returned to France in the fall of 1793.¹² At any rate, from 1793 until 1795 he led a wandering, unsettled life.¹³ Then, in January, 1795, his friend Raisley Calvert died, bequeathing him £900.¹⁴ For nine months we know very little of the poet's movements. In September he and Dorothy settled at Racedown, their first home together.¹⁵ Two years later they moved to Alfoxden¹⁶ to be near Coleridge. The joint composition of the *Lyrical Ballads* occupied much of the following year. At the end of it the Wordsworths left on the tour which included the writing of "Tintern Abbey." In September, 1798, after the publication of the *Lyrical Ballads*, the Wordsworths and Coleridge left for Germany.¹⁷ William and Dorothy returned to England in April, 1799.¹⁸

II.

Now we are ready to consider the poems themselves. They are, in order of composition: "The Female Vagrant," *The Borderers*, "The Ruined Cottage,"¹⁹ "The Thorn," "The Mad Mother,"²⁰ "The Complaint of a Forsaken Indian Woman,"²¹ and "Ruth." Four of them appeared in the first edition of the *Lyrical Ballads*: "The Female Vagrant," "The Thorn," "The Mad Mother," and "The Complaint"; "Ruth" appeared in the second edition; "The Ruined Cottage" was published as a part of the *Excursion* in 1814; *The Borderers* remained in manuscript until 1842. Another poem, "Vaudracour and Julia," is related to the group and will be referred to below.

Although these seven poems, by virtue of their common theme, form a unit, one—the poetical drama *The Borderers*—is in most ways different from the other six, which have more in common than their theme. The most obvious difference in *The Borderers* is that in it the desertion theme is incidental and never assumes importance, whereas in the other

¹² Harper, *William Wordsworth*, pp 150-52

¹³ Emile Legouis, *The Early Life of William Wordsworth* (London, 1897), p 281

¹⁴ Harper, *William Wordsworth*, p. 177.

¹⁵ Legouis, *op. cit.*, p. 284.

¹⁶ Harper, *William Wordsworth*, p. 233.

¹⁷ *Ibid.*, p. 279.

¹⁸ *Ibid.*, p. 293

¹⁹ This is the title of the poem which, like the story of Margaret, was later in incorporated into Book I of the *Excursion*.

²⁰ This is the title of the poem as it first appeared. Later the title was changed to "Her Eyes Are Wild"

²¹ The order of "The Thorn," "The Mad Mother," and "The Complaint" is that of the *Lyrical Ballads*. All three poems were written in 1798, and all appeared in the first edition of the *Lyrical Ballads*.

six poems it is dominant. Possibly it is therefore the more significant, for Wordsworth, by dragging it in where it is not integral, reveals his preoccupation with the theme. Furthermore, the desertion here is of a different sort from that of the other poems. In five of the others a woman is deserted by a man, her husband or lover, but in *The Borderers* the woodsman Eldred, acting from motives not very convincing,²³ deserts the Baron Herbert, whom he has found dying on the moor.

In several ways "The Complaint of a Forsaken Indian Woman" stands between *The Borderers* and the five other poems. As in the five but not in *The Borderers*, the desertion theme is dominant; on the other hand, as in *The Borderers* but not in the others, desertion was not consequent upon a sexual relationship. It was in accordance with an established tribal practice. In Wordsworth's source²⁴ the situation has none of the exaggerated pathos with which he invests it.²⁵ The anguish of the deserted woman, the theme of his poem, is not mentioned. Hearne explains the practice of deserting persons unable to continue a journey; Wordsworth emotionalizes the situation.

Another of the group under discussion—"The Thorn"—resembles "The Complaint" in the fact that the desertion theme is not to be found in the genesis of the poem. The note to "The Thorn" tells us that the poem arose from Wordsworth's desire to render the thorn as permanently impressive for the reader as it had become for the poet when, after being long unnoticed by the author, it was suddenly made vivid for him by a storm. To accomplish this, Wordsworth invented a lurid tale of seduction, desertion, and child murder, and set the scene beside the thorn. It seems an odd way to make a thorn impressive.

The six poems wherein a woman is deserted contain a number of details used again and again. In all of them the woman is pictured as entirely innocent. In all of them the anguish of the deserted woman is dwelt upon. In two—"The Mad Mother" and "The Complaint"—this

²³ Eldred's kind heart and humane inclinations were rendered impotent through fear of suffering, a second time, an unjust imprisonment (Act IV, Sc. 3, ll. 249-51).

²⁴ The source, Wordsworth tells us in a Fenwick note to the poem, is Hearne's *Journey from Hudson's Bay to the Northern Ocean* (sic).

²⁵ After describing the practice, Hearne makes this comment upon it: "A custom apparently so unnatural is perhaps not to be found among any other of the human race: if properly considered, however, it may with justice be ascribed to necessity and self-preservation, rather than to the want of humanity and social feeling . . ." (Samuel Hearne, *A Journey from Prince of Wales's Fort in Hudson's Bay to the Northern Ocean* [Toronto: The Champlain Society, 1911], p. 219).

is almost the whole poem. In the latter the words of the deserted woman constitute the entire poem; in the former all but the first stanza is the ravings of the mother.

In all six poems the interest centers on the woman. In fact, only in "Ruth" does the man even enter the scene. No poem offers any palliation of the man's offense. In the only one wherein he appears he is of fundamentally unsound moral character.

An interesting and somewhat unexpected fact is that only in "The Thorn" is desertion preceded by seduction. In all the others the point is made (sometimes, as in "The Mad Mother," gratuitously) that the woman is a lawful wife. Another interesting detail is that in all the poems in which a woman is deserted by a husband or lover the woman becomes insane, a condition from which she gradually recovers through the benign influence of nature. In "The Female Vagrant," "The Ruined Cottage," and "The Mad Mother," the woman seeks her erring husband. In "The Female Vagrant" and "The Thorn," desertion leads to lawlessness. In five of the poems a child complicates the mother's problem.

III

What do these poems add to what we know of Wordsworth's state of mind during the years he composed them? This question is difficult to answer satisfactorily because of the inconclusiveness of the evidence and the fallibility of any conclusions drawn from it. A few tentative conclusions, nevertheless, seem valid, especially if they are unimpugned by evidence from other sources. These details fill out rather than alter the picture as we have it. The general outlines have long been clear.

It is safe to say that Wordsworth's desertion of Annette preyed on his mind. All we know of Wordsworth indicates that he was not a man to seduce or desert lightly. His uneasy state of mind is further indicated by the fact that, never having employed the desertion theme before, he seized upon it in the first poem composed after his own desertion, returned to it frequently during a period of a few years, and then never treated it again. The recurrence, in poem after poem, of certain details, many of which fit his own case, suggests too that Wordsworth was uneasy in mind. It is interesting to note that, although no one poem in this group contains many of the details applicable to Wordsworth's own case, most of the particulars of his own experience are present in the group; and, by making a composite, one can bring them together. In "Ruth" the man is of different nationality from the woman and

comes to her from across the sea. In "The Thorn" they are unmarried. In most of the poems there is a child, and in "The Thorn" this child is the consequence of the illicit relationship. In "The Ruined Cottage" the man makes such financial provisions as he can. In the same poem economic factors, complicated by war, caused the desertion.

It seems likely that Wordsworth looked upon Annette as guiltless, for all his deserted women were undeserving of their fate. The facts about Wordsworth's later provisions for Caroline also support this conclusion. His attitude toward Annette may be further indicated by the fact that in "The Thorn," the only poem which parallels Wordsworth's case in that the man and woman were unmarried, no hint of blame attaches to Martha for her act.

Another conclusion we can venture is that what chiefly troubled Wordsworth was the wrong done to Annette rather than to Caroline. In each poem it is the pitiful plight of the deserted woman which the poet dwells upon. The consequences to the child are mentioned but once, and then briefly—in "The Mad Mother." Nor does the poet ever attempt a justification of the man's actions.

Finally, we may surmise that, as time went on, the matter troubled Wordsworth less. As the years pass, the poems which employ the theme become a smaller part of the poet's output. Moreover, in the composition of "Ruth," the last one, Wordsworth's critical and analytical faculties dominated, restraining the excessive emotionalism which is characteristic of "The Thorn" and "The Mad Mother." "Ruth" contains what is perhaps Wordsworth's most subtle character analysis—the analysis of the man who deserts Ruth. Yet not till five years later, in "Vaudracour and Julia," does the desertion theme seem to have been exorcized. This poem—which does not belong to our group, because in it the man refuses to desert—has long been admitted to have an autobiographical basis.²⁵ Although it perverts the facts, so that Vaudracour plays a role which Wordsworth did not, it seems to have given the poet relief from the theme—tardy rather than timely. It is the only one of these poems in which the man plays a gallant role.

IV

This investigation has suggested several tentative conclusions. The first is that the affair Vallon had a more important part in bringing

²⁵ See footnote 5.

about Wordsworth's period of depression than scholars have allowed. It would be absurd to maintain that it was the only cause or perhaps the chief one, but that it was an important one seems clear. It is worth noting that when, in 1795, the Calvert legacy removed most of the other causes for unhappiness, Wordsworth's preoccupation with the theme of desertion continued for four more years. Six of the seven poems in this group were written after the legacy had made the poet financially independent.

Second, I suggest that these poems may be a better place to go for insight into Wordsworth's state of mind during the years he composed them than the *Prelude*. Possibly Wordsworth was justified in omitting all reference to Annette from the *Prelude* on the grounds that her influence was temporary and in the last analysis superficial. But for some knowledge of what that influence was at the time, these poems—written then and, unlike the *Prelude*, largely unrevised²²—give a truer picture than the poet's grander attempt to paint what then he was.

And finally, may not the temporary breaking away from Nature, which in the *Prelude* Wordsworth ascribes to other causes, have been due in part to the state of mind induced by his relations with Annette Vallon?

²² The textual alterations in these poems are numerous but do not affect the sense or alter the point of view.

September, 1944

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THE REPUTATION OF WYCHERLEY'S COMEDIES AS STAGE PLAYS IN THE EIGHTEENTH CENTURY

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In two previous articles¹ I have traced, in a factual fashion, the stage history during the eighteenth century of two of Wycherley's plays, *The Country Wife* and *The Plain Dealer*. There I endeavored to give a running account of the seasonal performances of each play, to outline the principal variations in the casts, to survey pertinent contemporary comment upon the comedies, and to list the box office receipts when they were available. From this body of material I wish to draw some conclusions concerning the place and reputation of Wycherley's plays in the theatrical history of the eighteenth century.

It is necessary first, however, to point out the particular qualities in the eighteenth-century theatrical system which aid and hinder this evaluation. First of all, the repertory system, it is apparent, afforded ample opportunity for the revival of old plays, especially because, during most of the century, the theaters presented a daily change of fare except during the run of a new piece or of a newly revived one; even so, during most of the century a frequent change of bill was the prevailing custom, and often there might be a different play presented on each night for a week, two weeks, or even longer periods. The frequency with which plays reappeared was an indication of their drawing power. On the other hand, because this system was utilized year after year, because play succeeded play day after day, and because comment upon stage performances was not so frequent or so systematically organized as in the newspapers and periodicals of more recent times, commentators upon theatrical matters in the early years of the eighteenth century often took the system for granted and did not discuss the reasons for the retention or absence of plays in the repertory. If a play returned to the stage after a long absence, it might be com-

¹"*The Country Wife* in the Eighteenth Century," *Research Studies*, X (1942), 141-72; "*The Plain Dealer* in the Eighteenth Century," *Research Studies*, XI (1943), 234-56.

mented upon, but those plays—like Vanbrugh's or Wycherley's or Etherege's—which were subject to presentation season after season were very seldom discussed, for the regularity of their appearance apparently did not stimulate analysis or discussion of them. The theatrical audiences in the mass were also relatively inarticulate in leaving for posterity a record of their impressions of plays seen and heard. Because Samuel Pepys is an exception in that respect, we are very grateful for the entries in his diary concerning the stage in the 1660's, but there is no Pepys to guide us through those years when Wycherley's plays had their greatest post-Restoration vogue. There are the facts relating to their performances, but comment is relatively scarce.

Yet, over a long period of time, a repertory theater offers a pattern for the performances of each play, a pattern which is in itself an indication of the reputation of the play. The repertory, in turn, represents the external evidences of the tastes which dominate the decade, the half-century, or the century. A play gains or declines in frequency of performance, and it may vanish altogether. The pattern offers clues to the reputation of the play, but the pattern and vogue of a drama are the more difficult to comprehend because of the many variables and unknowns of the theaters: the effect of the weather on attendance upon this or that evening or week or month; the deterring or stimulating effect of the political situation upon interest in plays; the effect of an important or exciting domestic situation—the South Sea speculation, for example; the power of a given actor or actress to command an appreciative audience in almost any part the player undertook; the share which singing, dancing, and instrumental music offered between the acts or after the main play had in attracting spectators; the vogue of the afterpieces—especially farce and pantomime—in relation to the legitimate play of the evening; the effect of a too-frequent repetition of a play, whether in a run or in performances scattered throughout a season, in giving us an erroneous conception of its drawing power; the ability of the playwright's name to attract or repel an audience; and the effect of the composition of an audience—the mixture of "persons of quality," of citizens, of footmen, or of apprentices (the enthusiasm of the last-named often disturbed men of business)—upon the selection of plays and upon the reputation of playwrights. Unfortunately, many of these matters can not now be deter-

mined with accuracy, for the clues are lost in the minutiae which compose the life of previous centuries and which are not sufficiently recorded to enable us to reproduce completely the life and times of the past. But there are some elements which offer clues. One concerns the frequency and pattern of the performances of Wycherley's plays, with the accompanying events which may help to explain them. Another is the expressed opinion of the century concerning both the merit of the comedies and the reasons for their rise or decline in popularity, with the light it sheds upon the variables in the stage history of the plays.

I

To begin with the pattern of performances, it is apparent that only two of Wycherley's comedies had any genuine importance in the repertories. *The Gentleman Dancing Master* apparently was never revived during the eighteenth century, and *Love in a Wood* is on record for only two performances, at Drury Lane on August 15 and 19, 1718. The latter was seen (and probably read) by so few people that it had little effect upon the public response to Wycherley. To *The Plain Dealer* and *The Country Wife* the stage managers turned in reviving his plays; no doubt, it was upon these that his reputation among playgoers was largely based. The first problem to be considered, then, is: What share did his plays have in the total offerings of the theaters?

In a repertory system, the frequency with which a play is repeated or revived is an indication of its drawing power, unless there are unusual conditions, such as a theatrical monopoly, which restrict the choice of the audience and which may permit the stage managers to be somewhat insensitive or slow in responding to the tastes of the audience. Because there was, during part of the early eighteenth century, a theatrical monopoly and because, during other years, the number of playhouses ranged from two to five, the mere number of performances is not truly indicative of the share which any play had in the repertory. To show more accurately the participation of Wycherley's plays in the offerings of the playhouses, the following table has been prepared. It lists the total number of performances of all plays^a and

^aBy total performances is meant every performance at each theater during the winter and summer seasons when the main attraction was a legitimate play; performances of Italian operas and of French and Italian plays when given in those languages are not included. This table, like the lists of Wycherley's

those of Wycherley's comedies³ in relation to the total:

Seasons ⁴	Performances					Percent Wycherley's
	Of All Plays	Of C.W.	Of P.D.	Of L.W.	Of the Three	
1702-03 to 1704-05	578	1	6		7	1.21%
1705-06 to 1709-10	1138	2	1		3	0.26%
1710-11 to 1714-15	1068	2			2	0.18%
1715-16 to 1719-20	1819	16	8	2	26	1.42%
1720-21 to 1724-25	1918	11	13		24	1.24%
1725-26 to 1729-30	2237	39	4		43	1.92%
1730-31 to 1734-35	2986	29	11		40	1.34%
1735-36 to 1739-40	2281	14	17		31	1.36%
1740-41 to 1744-45	2315	26	4		30	1.29%
1745-46 to 1749-50	1883	8			8	0.42%
1750-51 to 1754-55	1834	3			3	0.16%

From this table it is apparent that there were several fluctuations in the relative standing of Wycherley's plays, but the general movement is from a small share in the repertory during the first fifteen years to a greater share in the 1720's and 1730's; following a fairly stable level in those decades, the plays declined in the late 1740's until they no longer appeared (in their original form) on the eighteenth-century stage after 1753-54. The principal vogue of the plays is, in the eighteenth century, confined to about twenty-five or thirty years; from their premieres to the 1750's the active life of the comedies covered some eighty years.

plays in the preceding articles in this series, is based upon a calendar of London performances from 1660 to 1810 which I have compiled. The calendar has been secured from theatrical advertisements in the newspapers of the century, from the collections of playbills in the British Museum, and from the playbills in the Huntington Library. Additional material has been secured from checking the calendar with the Winstone Calendar in the Folger Library and the Latreille Calendar in the British Museum (Add. Mss. 32249-32252).

³I wish to remove two performances from the list given in my article on *The Country Wife*, errors which have been kindly called to my attention by Dr A. H. Scouten of the University of Texas. I made the inexcusable mistake of listing *The Country Wit* as *The Country Wife* in compiling the list; the performances given for Lincoln's Inn Fields, February 2, 1704, and for Drury Lane, October 29, 1716, are *The Country Wit*. In addition, the performance of *The Country Wife* listed for February 16, 1747, is a typographical error for February 26, 1747.

⁴The table begins with 1702-03 because that is the first season for which there is sufficiently regular advertisement of daily performances to offer an adequate indication of the offerings for a whole season. Following the inauguration of theatrical advertisements in the *Daily Courant* in 1702, the total offerings for a given season are more completely known than for preceding years.

In the opening years of the century Wycherley's plays were somewhat neglected, but it should be noted that they were not in this respect unique among Restoration dramas. Congreve's five plays, for example, were much less frequently performed than later in the century.⁸ The comparative infrequency of performance may be in part attributed to the censure laid upon many Restoration plays by Jeremy Collier and his fellow moralists, a disapprobation which may have induced caution in players and managers about presenting them, especially because the moralists for several years vigorously attacked plays which they termed licentious and brought some of the players into court for acting in dramas which the moralists cited for their reprehensible effects upon audiences.⁹ Other plays besides Wycherley's and Congreve's which were singled out by Collier show a similar neglect: *The Provoked Wife* and *Amphitryon* were infrequently staged in the first fifteen years of the century, and *The Spanish Fryar* and *The Relapse*, though less neglected, made steady gains as the years separated them from the attacks by Jeremy Collier and Arthur Bedford.

Around 1715, however, Wycherley's plays showed renewed power as stage attractions; their revival coincides with the cessation of Drury Lane's monopoly in 1714-15, when John Rich opened his theater in Lincoln's Inn Fields. Two factors seem to have stimulated the revival of Wycherley's plays and other neglected ones. One was the fact that Rich had to create a repertory for his playhouse and Drury Lane to strengthen or vary its offerings. The other was the lessening of moralistic censure of the stage. As a result, many long-neglected plays were re-introduced during the five years after competition was re-

⁸*The Double Dealer* seems to have been acted only once between 1700 and 1718, *The Way of the World* but once between its première in 1700 and 1715, and *The Mourning Bride* three times between 1700 and 1710. *The Old Bachelor* and *Love for Love* averaged about two performances apiece in the first decade in contrast with a much better showing later (In the earliest years of the century, the theatrical advertisements are sometimes so phrased as to imply other performances of some of these plays, but performances for which there is a definite record are limited to those stated here.)

⁹The years following 1698 witnessed many attacks upon the stage by the moralists and several prosecutions of actors for exhibiting plays which gave offense. For some of the legal actions against actors, see J. W. Krutch, *Comedy and Conscience after the Restoration* (New York, 1924), pp. 169-77, and for anti-stage pamphlets, see F. T. Wood, "The Attack on the Stage in the Eighteenth Century," *Notes and Queries*, CLXIII (1937), 218-22. Arthur Bedford, with his minute examinations of many plays for every kind of obscenity and immorality and his charges against the playhouses for exhibiting them, typifies the constant pressure upon the theaters by the moralists.

stored.' The effect upon Wycherley's comedies may be seen in the following table, which compares their showing during 1710-11 to 1713-14, when Drury Lane had a virtual monopoly on legitimate plays, and during 1714-15 to 1717-18, when Drury Lane and Lincoln's Inn Fields competed.

Seasons	Performances					
	Of All Plays	Of C W	Of P.D	Of L.W.	Of the Three	Percent Wycherley's
1710-11 to 1713-14	734	0	0	0	0	0.00%
1714-15 to 1717-18	1466	12	8	2	22	1.50%

The change is pronounced. Shortly after competition began, Drury Lane revived *The Country Wife*, absent for five seasons, and Lincoln's Inn Fields restored *The Plain Dealer*, missing for nine seasons.⁸ The revival at Rich's theater was the more immediately successful, but Drury Lane retained *The Country Wife* on the stage for more successive seasons than Rich did *The Plain Dealer*. When Rich dropped the latter play, Drury Lane soon (1720-21) took it up and staged it for several years.

After competition between the playhouses had restored the comedies to the stage, rivalry helped to give them their greater vogue in the late 1720's. In 1725-26 both Drury Lane and Lincoln's Inn Fields presented *The Country Wife*, the first time it had been acted competitively in the same season. The rivalry was publicly emphasized by Drury Lane's stealing a march on the opposition in staging *The Country Wife* two days ahead of Rich's more successful offering of it. The

⁸That the effects of competition were not confined to a few plays or to a single type may be seen from other examples. *All for Love*, long inactive, was restored in 1718-19. *Bonduca*, unacted for several years, was revived by Drury Lane in 1714-15. *The Busy Body*, averaging a performance or two each season at Drury Lane to 1714-15, more than doubled its frequency of performance there in the next five years. *The Country Wit*, infrequently staged, appeared at Drury Lane in 1715-16; *Cymbeline* was restored in 1717-18; *Don Sebastian* returned in 1716-17 after an absence of four seasons. In both Drury Lane and Lincoln's Inn Fields *The Emperor of the Moon* was revived in 1714-15 with considerable success. *The Island Princess*, off the stage for some years, was a success in both houses in 1714-15, and for two or three years following in Lincoln's Inn Fields; and *The Prophetess* was one of Rich's most successful ventures in 1715-16 after it had gone unacted for several years.

⁹The effects of competition may also be seen with respect to Congreve's plays. *The Double Dealer*, apparently unacted since 1703, was revived by Rich in 1718-19. *The Way of the World*, off the stage since 1705, was tentatively tried by Rich in 1714-15 and was a genuine success at Drury Lane in 1717-18. *The Old Bachelor* and *Love for Love*, each acted three times in 1713-14 under Drury Lane's monopoly, more than doubled that number in the next season under competition.

season was marked not only by competitive productions of the comedy, by many performances of it, and by continued staging of *The Plain Dealer*, but also by the appearance of Quin as Pinchwife; Quin, in time, became more successfully associated with Wycherley's plays than any other actor. The opportunity was now open for Wycherley's comedies to establish themselves very firmly in the repertories of both playhouses.

In the rivalries of the theaters there are signs, however, that the playwright's comedies were not considered by the stage managers as among their strongest plays. Only for a few years (1725-26 to 1735-36) did both houses compete each season in offering *The Country Wife*. During no season was *The Plain Dealer* offered competitively by both houses. The experience of the older theaters with these plays seems to have convinced the managers of the third major playhouse opened in the early eighteenth century— the theater in Goodman's Fields, 1729—that, even though they, like Rich fifteen years earlier, had to create a repertory for their theater, Wycherley's comedies did not offer sufficient promise as successful stage plays to warrant casting and staging them.*

If competition between the theaters marked the rise of Wycherley's plays into a more substantial place in the repertories, rivalry between actors helped to sustain them in the 1740's for their last burst of popularity before they were relegated to the archives of unacted plays. The successes of the comedies in the 1740's coincide with James Quin's attempt to meet the competition of the rising young actor, David Garrick. The advent of Garrick at Goodman's Fields in 1741-42 did not at the moment alter the status of Wycherley's plays, but by the next season, when Garrick was engaged at Drury Lane and his histrionic ability threatened not only the prestige of Quin and other established actors but also their modes of acting, Quin apparently decided to re-emphasize some of his more successful roles as a foil to the novelty and attraction of his young competitor. In 1742-43

*Goodman's Fields' interest in three of Congreve's plays shows the greater stage success which marked the reputation of that playwright's works. After the establishment of the theater in Goodman's Fields, it offered *The Old Bachelor*, *Love for Love*, and *The Mourning Bride* with considerable success; the two comedies formed substantial elements of the repertory of Goodman's Fields. A parallel between Wycherley's and Etherege's comedies appears in the fact that Etherege's, like Wycherley's, were not taken up by Goodman's Fields and that Etherege's, like Wycherley's, lasted but briefly beyond the middle of the century.

Quin appeared in both *The Country Wife* and *The Plain Dealer*, three times as Pinchwife and ten times as Manly. Not for some years had the comedies done so well, for Quin's bid against Garrick was strengthened by his having Mrs. Cibber to play opposite him in *The Country Wife* and Mrs. Horton in *The Plain Dealer*.

As Quin gradually withdrew from the theaters in recognition of Garrick's success, Wycherley's comedies were less frequently given. In part, the future of the comedies was also determined by Garrick's failure to undertake roles in them, just as *The Man of Mode* declined when an older actor like Colley Cibber ceased appearing in it and a new one like Garrick did not re-create the part in his own mode of acting. The characterization of Pinchwife and Manly which Quin created was not continued by Quin or displaced by one of Garrick's fashioning. In the overlapping portions of the period in which a new school of acting replaced an old, Wycherley's and Etherege's comedies proved, on the whole, insufficiently attractive to the new school to stimulate it to revive them according to its own style of acting.¹⁰ Even when Garrick, who did eventually sponsor the revision of Restoration comedies to make them conform to the changing taste of his day, rewrote *The Country Wife* into *The Country Girl*, he did not take a part in his own revision; his principal relationship to Wycherley's plays lay in his rewriting one of them.

In addition to the frequency of performance, the receipts which Wycherley's comedies attracted at the box office are a partial indication of the attention they commanded. Box office income, however, is less trustworthy evidence than the pattern of performances, for not only were they affected by the play advertised, but also by the weather, the

¹⁰Congreve's plays, which proved more enduring on the eighteenth century stage than Wycherley's or Etherege's, do not offer a parallel in all respects, but there are similarities. In his first season Garrick acted in two of Congreve's plays, *The Old Batchelor* and *The Way of the World*; he possibly was not eminently successful in either. (Although *Love for Love* was a part of Goodman's Fields' repertory that season, he did not appear in it.) Upon his removal to Drury Lane, Garrick retained his role in *The Old Batchelor*, but not for long. Later, in 1750, he essayed Osmyn in *The Mourning Bride*, but did not keep the part throughout his career. Garrick's relationships with roles in Congreve's plays were not necessarily the result of any disinterest in them, for he often faced the awkward situation of finding certain parts already in the hands of well-established players in his own theater whom he could not easily supplant without creating theatrical jealousies. But, whatever the reasons, Garrick, as actor and manager, gave Congreve's plays only (at best) moderate attention, and his failure to retain parts in the dramatist's plays was undoubtedly a factor in the decline that overtook them in the 1760's.

cast, the *entr'acte* entertainments, and, especially, the farce, ballad opera, pantomime or musical piece billed as the afterpiece. Incompleteness of data is another handicap, for apparently the receipts have not been preserved¹¹ for many of the theaters except Rich's in the early years of the century, and often irregularly even for his. In the early decades there is no opportunity to compare receipts of Wycherley's plays at opposing theaters in the same season.

There are, however, some discernible trends in the available receipts. It is apparent, first of all, that *The Plain Dealer* upon its revival at Lincoln's Inn Fields in 1715-16 produced small receipts. From the first through the fourth performance, they steadily declined,¹² and they averaged not quite £25 an evening, whereas a genuinely popular revived play like *The Prophetess* in the first half of December 1715 ranged from above £100 to about £77. During this season *The Plain Dealer* was chosen as a benefit play not for one of the principals in the cast, who might be expected to capitalize on a new role if a successful one, but for a singer (Mrs. Fletcher) and for the pit office-keepers. For its single performance in the next season *The Plain Dealer* brought very small returns. Probably this revival was not a financial success.

In 1732-33, when the comedy was again revived by Rich, this time at Covent Garden, the receipts improved; possibly a greatly superior cast, headed by Quin, was a material factor. Although the receipts again declined steadily for three performances, they were on a higher level: £101 5s, £52 2s 6d, £50 12s. The sum for the first night could be considered good; for the following ones, average. For the two benefits, the receipts were excellent, but no principal in the cast had *The Plain Dealer* for his benefit.¹³ From these incomplete

¹¹For the early part of the century the receipts are to be found principally in the Latreille Calendar and the Winstone Calendar; some have been printed by F. T. Wood in *Notes and Queries*, CLXIV (1933), 220-24, 256-60, 272-74, 294-98. Later in the century they are also to be found in a series of British Museum manuscripts, Egerton 2268-98, and in the Huntington playbills.

¹²For convenience, I repeat them: November 19, 1715, £37 1s; November 21, £22 5s; November 29, £18 9s; December 13, £17 1s 6d.

¹³The receipts on benefit nights would suggest, however, that it was not primarily the play itself which drew the audience. On such nights the treasurer's books listed (1) the money taken at the box office and (2) that from tickets sold on behalf of or by the benefitting player; such receipts suggest the roles of the play and the player in attracting an audience. For *The Plain Dealer* on April 20, money taken at the office came to £34 4s, and the sum for tickets sold was £146 13s. On May 23 sums for the two categories were £19 2s 6d and £128 1s. Although the point should not have great stress, it is clear that the

data, it would appear that *The Plain Dealer* could not be counted on for receipts above the average.

With *The Country Wife* acted about twice as often as *The Plain Dealer*, it would be expected that receipts for the former play would be better; they generally were. For 1725-26, when the income is first available, the opening performances of *The Country Wife* on October 4, 6, and 8 attracted sums better than the average for that month. The income for the opening night, £126, was excellent; the decline to around £75 for the other two evenings was not an alarming decrease. For the seasons as a whole the comedy did rather well in attracting an audience,¹⁴ but in succeeding seasons the income was generally lower, although the receipts averaged better than those for *The Plain Dealer*. When *The Country Wife* was offered as a benefit for one of the principals, the receipts were generally excellent. For example, on March 23, 1727, at Quin's benefit the play drew £51 9s 6d at the office and £106 13s in tickets sold.¹⁵ Two years later, on March 20, 1729, at a benefit for another principal, Mrs. Younger, the money taken in amounted to £81 14s and the sum for tickets to £101 3s.¹⁶

Unfortunately, few receipts for the early 1740's have been preserved, and it is unknown how well Quin succeeded, in terms of the receipts, in his frequent offering of both comedies in 1742-43, when he was competing with Garrick. But receipts for three performances between 1748 and 1753 show that *The Country Wife* had comparatively small drawing power by then. At Drury Lane on November 28, 1748, it

industry of the player or his friends accounted for about five-sixths of the receipts.

¹⁴The presence of royalty at plays was another occasion on which attendance was affected by factors other than the intrinsic merit of the play. On at least five occasions *The Country Wife* was seen by royalty: March 17, 1726, April 19, 1733, November 29, 1733, October 27, 1737, and November 14, 1739. For only one of these performances are the receipts known; on March 17, 1726, a "command" performance brought £164 17s, a very good showing.

¹⁵That these receipts testify to Quin's prestige appears in the contrasting income for a benefit performance of *The Country Wife* a month later (April 21, 1727) for M. Poitier, a dancer. The money taken in came to £24 1s 6d and the tickets to £30 2s, the latter sum less than a third of that realized by tickets for Quin's benefit.

¹⁶In the 1730's *The Country Wife*, like some other plays, was given occasionally as a benefit for persons not closely connected with the stage, but it apparently was only moderately successful in providing funds for good causes. On December 17, 1731, at a benefit for the daughter of a "decayed tradesman," it brought £78 17s 6d; on November 16, 1732, for a gentleman it took in £86 6s; and on May 11, 1733, for a gentleman who had written for the stage, it produced only £63 10s 6d.

attracted only £70, a small sum for that period, when the receipts were generally higher than in earlier years; and on December 7, 1749, only £60. A benefit on May 4, 1753, brought in £150, no better than average.

On the whole, the frequency of performance and the receipts point to the same conclusion. *The Country Wife* was not only the more frequently performed but also, according to the receipts, attracted the larger audiences. It would probably stand on the treasurer's books and in the manager's mind as a moderately dependable stock play rarely productive of more than ordinary profits. *The Plain Dealer*, in all probability, was judged as less certain of gain except under the most favorable circumstances. Both plays, it would seem, owed their principal spurts in popularity to competition between playhouses and players and to the success of James Quin as Manly and Pinchwife, roles he acted in both companies. That the comedies had a sustained appeal, though often small, seems evident from their remaining on the stage for several successive seasons; in the 1730's and 1740's they appeared most frequently in the playhouse in which Quin was acting. He appeared in approximately half the performances of each comedy, and was supported by such excellent performers as Ryan, Hippisley, Mrs. Younger, and Mrs. Cibber. Yet the failure of the comedies to be produced at Goodman's Fields or apparently to be presented by the provincial companies in some of the principal centers outside London¹⁷ suggests the limitations which players and managers placed upon their drawing power.

II

When one turns from data concerning performances to eighteenth century discussion of Wycherley's plays, it becomes apparent that the later portion of the century had developed fairly detailed explanations for the failure of the comedies to retain their place upon the stage. In the earlier years, however, when the comedies were active upon the stage, the public seems to have taken them, as well as many other older plays, more or less for granted as parts of the traditional repertory. Their presence in the theaters was a fact observable season after season and often seemed insufficient cause for extended comment.

¹⁷Sybil Rosenfeld's *Strolling Players and Drama in the Provinces, 1660-1765* (Cambridge, 1939) lists no performances for several provincial cities, and LaTourrette Stockwell's *Dublin Theaters and Theater Customs* (Kingsport, Tennessee, 1938), gives none for Dublin.

Later in the century, discussion of them increased, partly because the periodicals gave more attention to theatrical news and reviews and partly because the reappearance of Wycherley's comedies in a revised form raised several questions: Why had the plays lost their place? Why could they not be revived in their original form? How did the originals and revisions compare not only in merit but also in appeal to different theatrical generations? In surveying these problems, public criticism offered clues which concern the reputation of the plays and the presumed causes for their failure to remain unaltered on the boards. It was the opinion of many such writers for the press that Wycherley's dramas, though witty and brilliant, were equally culpable with other Restoration comedies in being too licentious and morally dangerous to be accepted by an age which regarded itself as very sensitive to the moral effect of stage plays. In greater detail, mid-century opinion looked upon Wycherley's comedies in the following ways.

Although the dramatist's plays were less frequently performed than Congreve's or Vanbrugh's, many dramatic critics—and in the second half of the century the greatly increased discussion of the drama in newspapers and periodicals suggests that that type of popular criticism was a strong influence upon both public opinion and the theaters—ranked Wycherley with Congreve, Vanbrugh, and Farquhar as the principal comic dramatists between 1660 and the production of *The Conscious Lovers*, a play which to many writers marked the change from the older to the newer type of comedy. Frequently Wycherley is simply referred to as one example of the excellence of the earlier drama. For example, a generalization in the *Universal Spectator*, February 23, 1734, referred to "the Wit of a Wycherley or a Congreve." Sometimes Wycherley was coupled with other playwrights as the best late seventeenth-century dramatists. The *London Magazine* in 1768¹⁸ stated that the "general complaint at present urged . . . is that we have lost all the wit which rendered the productions of Wycherley,¹⁹ Vanbrugh, and Congreve so acceptable to our forefathers." Samuel Foote, in 1747,²⁰ after discussing Jonson, Congreve, and Vanbrugh, added: "I ought to make some Apology for my silence with regard to Wycherley, Otway, Farquhar, and Cibber; but as these

¹⁸XXXVII (July, 1768), 339.

¹⁹I have regularized the spelling of the names of the dramatists.

²⁰*The Roman and English Comedy Consider'd and Compar'd* (London, 1747), p. 26.

Writers possess the same Beauties and Errors in common with those already mentioned, it will be unnecessary to trouble you with a particular Description of their Works" In an account of England printed in 1772 it was stated that "Jonson, Wycherley, Congreve, and Vanbrugh, are esteemed the best of [the] comic writers."²¹

Such references show principally that Wycherley was frequently coupled with Congreve or Vanbrugh or other playwrights in the minds of many writers on dramatic subjects. More revealing are the attempts to distinguish the individual merits of Restoration comic dramatists; in these analyses Wycherley generally ranked high. In *The Reformer* in 1748²² Edmund Burke, after depreciatory remarks concerning Farquhar, Cibber, and Mrs. Centlivre, gave to Vanbrugh, Congreve, and Wycherley superiority in comedy, although he was disturbed by the licentious qualities in their writing. He subordinated them, however, to Jonson, who "of all the Comic Writers is the only one in whom unite all the Graces of *true Comedy* without the monstrous Blemishes that stain and disfigure the Merit of the others." In the *Morning Chronicle*, December 7, 1775, a writer referred to the frequent lament to be heard that "genius . . . is extinct" and that such great writers as "Shakespeare, Jonson, and Fletcher; Wycherley, Congreve, and Vanbrugh" are no more.

In addition to naming Wycherley as among the best comic dramatists, writers praised his work in general or a play in particular. Dryden's praise (in the Preface to *The State of Innocence*, 1677) of Wycherley for offering mankind "one of the most bold, most general, and most useful Satyrs which has ever been presented on the *English Theatre*" was frequently repeated. In 1723 Giles Jacob reprinted the high praise of Wycherley from the memoirs of the dramatist by Major Pack:

He is justly celebrated among the best of our *English Comick Poets*. His Plays are an excellent Satire upon the Vices and Follies of the Age he lived in. His Stile is Masculine, and his Wit is pointed; and yet with all that Sharpness and Severity with which he appears on the Stage, those who were of his Acquaintance applauded him for the Generosity and Gentleness of his Temper.²³

²¹See the *Town and Country Magazine*, April, 1772, p. 172.

²²No. 2, February 4, 1748.

²³*The Poetical Register* (London, 1723), I, 278.

Horace Walpole, though condemning the playwright's licentiousness, praised him for his "easy dialogue."²⁴

For *The Plain Dealer* there was considerable praise in addition to Dryden's remarks on its virtues. William Egerton, in a letter printed in 1731, lauded not only its satire and wit but also its morality, for by "exposing Adultery . . . this excellent Comedy is rendered a most instructive, and a most noble Satire, upon the Hypocrisy and Villainy of Mankind"; Egerton singled out Wycherley as "almost the only modern Writer who has made Comedy Instructive in its Fable."²⁵ Once the comedy had been altered and revived, the original play was often referred to with praise. In the *Public Ledger* for December 13, 1765, a writer, who believed that *The Plain Dealer* required the alteration which Bickerstaff had just given it, stated that the "piece as originally written by Mr. Wycherley . . . contains perhaps more wit, satire, and humour, than most productions of its kind." *Lloyd's Evening Post* for December 8-10, 1766, reviewing a performance of the altered comedy, referred to the oft-repeated fact that "M. de Voltaire prefers this play to the *Misanthrope* of Molière" and stated that Wycherley added "to his *Plain Dealer* the very particular that was wanting in the *Misanthrope* of Molière, viz. an interesting and well conducted intrigue. Nothing can be better calculated to raise an agreeable surprise in the spectators, than the extraordinary manner by which Manly finds means to enjoy the false Olivia, and to wreak vengeance on his perfidious friend." On October 11-14, 1766, the *London Chronicle* acclaimed it as "the masterpiece of Wycherley It is an excellent picture of the world, the satire bold, useful, just and general. Full of business, the life and spirit of Comedy, the characters are admirably drawn, and well supported through the whole, so as to render most agreeable entertainment." And the *Public Ledger* October 19, 1771, referred to Dryden's belief that the comedy was "the most capital of all Wycherley's dramatic Pieces" and added that the "Original had many excellencies, with respect to wit, humour, general satire, and character strongly marked."²⁶

There was also praise of *The Country Wife* as Wycherley wrote it. Richard Steele, whose view of a play was affected by his concern

²⁴*Works* (London, 1798), II, 315.

²⁵*Faithful Memoirs of the Life* [of] Mrs. Anne Oldfield (London, 1731), p. 97.

²⁶Reprinted in the *Theatrical Review* (London, 1772), I, 99.

with its moral outlook, defended Wycherley's drawing the kind of man he created in the comedy, for he would have "discovered his Want of knowing the Manners of the Court he lived in, by a virtuous Character in his fine Gentleman."²⁷ In *The Prompter* for April 1, 1735, Aaron Hill compared *The Country Wife* and *The Man of Taste*, both of which Hill viewed as being derived from the same French original. In the two comedies Hill discovered "the Difference between a *real Genius* and *one that is not*. The first, even in Imitation, becomes *new*, and *improves* from the MODEL, in his Eye—The other is *servile*." In Hill's eyes the comparison turned entirely in Wycherley's favor. In the *Public Ledger*, December 30, 1771, there was repeated the generalization that Wycherley handled the situation better than did Molière, from whom, the reviewer emphasized, Wycherley got the hint. In addition, *The Country Wife* "is equal to most of the Pieces of his time, for Character, Incident, and easy Dialogue." The reviewer also referred to the "sterling Wit, high Character, and nervous Language" of the comedy as Wycherley wrote it.²⁸

In view of the high level of comic and dramatic merit upon which many writers placed Wycherley, it might seem surprising that his plays had departed in mid-century from the theaters. But, very often, this praise was only the conventional compliment which preceded the depreciatory comment. Much of it seems to have been also a traditional opinion rather than a considered one. The names of Wycherley, Congreve, Farquhar, Vanbrugh, and sometimes Etherege came easily and habitually to mind when a writer wished to consider the leading comic dramatists of the late seventeenth and early eighteenth centuries. Many of the critical phrases were repeated without necessarily being reconsidered. That tendency appears in the frequent citing of Voltaire's comment upon Wycherley, in the references to his "easy dialogue" or his "sterling wit." And some of the commentators merely made the conventional remarks about Wycherley before they turned to explaining why his plays had departed the stage and were no longer acceptable in their original form.

One of the principal objections to Wycherley was part of a widely diffused attack upon Restoration comedy as a whole. Over and over, the reviewers and correspondents for the journals made the point that,

²⁷Tatler, No. 3.

²⁸Reprinted in the *Theatrical Review*, I, 330-31.

although Restoration comedies may have wit, humor, lively and vital characters, and excellent plotting, they were objectionable and detrimental to the best interest of the stage and the public. These objections center in the belief that Restoration comedy is, in effect if not intent, licentious, greatly so; and that it, in effect again if not intent (and there was some question of the presumed good intentions of the dramatists), did not contribute to the instruction of the spectators in goodness and virtue. A moral aim, a clearly discernible and strongly marked moral aim, had become for many critics a necessity in all stage productions, and it was missing from Restoration comedy.

Edmund Burke's discussion in *The Reformer* in 1748 illustrates the trend in mid-century. In one number²⁹ he defined the "Parts" which to his mind "when joined constitute a good Piece": First, "*Humour without Smut or Buffoonry.*" Second, "*Wit free from the pert and vapid.*" Third, "*Judgment to conduct the Fable so as all the parts shall seem to depend one on another, and center in the Conclusion as in a Point.*" Fourth, "*Propriety of Character,* that the form of each Person's speech may be peculiar to himself only." Fifth, "the whole of the Piece to be wrote for the Sake of one great Moral." No doubt, much of this creed would have been acceptable to Restoration dramatists, but Burke found all of them wanting in one part or more. He stated that when "all these Excellencies unite, we may, without Hesitation, pronounce it a *good Piece*; where some only, *middling*; but where all are wanting, we may, I think, account it *execrable.*" Farquhar and Cibber he placed in the last category. Not only was Farquhar thought deficient in wit, humor, judgment, and characterization, but "for a Moral, 'tis never so much as aim'd at!" Though Cibber seems to moralize, "it comes so awkwardly from him, that a Person is at a Loss to judge which is most fulsom, his Morals or his Bawdry." Vanbrugh, Congreve, and Wycherley are superior. Vanbrugh has "true Wit, Humour, and some Propriety of Character," but his "Deficiency in Morals and Plot be as great as any of the former." Congreve, endowed with great "Gifts of Nature," has "a lively Wit, solid Judgment, and rich Invention," but "such Obscenity, as none can, without the greatest Danger to Virtue, listen to; the very texture and groundwork of some of his Plays is Lewdness, which poison the surer, as it is set off with the Advantage of Wit." Wycherley, except

²⁹No. 2, February 4, 1748.

in *The Plain Dealer*, is "as lewd as the former" but "has yet this Excuse to soften it; that whatever vicious Characters he draws, he commonly endeavours to make them ridiculous." Even this virtue is insufficient, however, for "as the Satyr contained in a lewd Picture, can never be so instructive as the foul Ideas it will raise . . . Prudence, and a Regard for Decency require, they should be sedulously avoided." Ben Jonson alone of the comic dramatists has the "Graces of *true Comedy* without the monstrous Blemishes" that mark the others.

It is noticeable, I believe, that the two points in which all the dramatists discussed by Burke are deficient in his eyes are the lack of a "great *Moral*" and the presence of licentious elements. Burke does not by any means originate these views; after the attacks by Jeremy Collier in 1698 similar concepts were held by many people, but they often remained undercurrent. By mid-century Burke's views were those of a greater and often a more influential body of people. The diffusion of this view of the drama may be seen by an examination of representative statements in the middle and later century.

In the *Gentleman's Magazine* for 1748,³⁰ in what is ostensibly a critique upon *The Orphan*, a writer surveyed the dramatic practice of the days of Charles II: If a dramatist of that period turned to comedy, the principal character was . . . a *fine gentleman* that could dress, dance, use his sword, and, with equal facility and address, *smoak a justice, roast a parson, or cuckold an alderman*. . . . Can any one then, who is sensible of the dignity of this divine art, and the excellent purposes it is capable of serving, with patience think on such a nest of pestilent vermin, as, warmed by the sun-shine of court favours, crawled forth at that time, and spread their poisonous influence around them? Who, I say, can, without indignation, behold such shameless profligates as *Carew, Kulligrew, Howard, Sedley, Etherage, Sheffield, Durfey*, the hasty *Shadwell*, and even the slow *Wycherley*, corrupting the taste, and consequently the manners of an age, and arrogating to themselves THE SACRED AND VENERABLE CHARACTER OF POETS

In similar vein, "Theatricus" wrote in the *Gazetteer and London Daily Advertiser* for October 27, 1764:

Let anyone, who is not totally lost to all sense of shame, read, coolly and candidly the dramatic productions of the last age—and then maintain, if he can, that one in twenty of them is fit to be represented *at this period*. The comedies of Wycherley, Mrs. Behn, Otway, some of Beaumont and Fletcher . . . are (whatever may be their merit in other respects) so horribly fraught with the *worst* kind of lewdness and obscenity, and indeed of blasphemy, that one

³⁰XVIII (December, 1748), 552.

would think sensuality and intriguing was the sole and whole business of the lives of the people of that age; and what we deem the deepest, and blackest of crimes and injuries to society were considered by our forefathers, if not meritorious, at least but deserving of a very gentle reprehension.

An article in the *London Magazine* for 1768⁸¹ closed with a statement typical of the moral outlook which was by then rather deeply rooted and narrowly interpreted:

The comedies of Dryden, Wycherley, Vanbrugh, and Congreve, notwithstanding the luxuriancy of their wit, and the abundance of their humour, are almost banished, and indeed banished very justly from the theatre; we have too much understanding, thank God, in these times to be charmed with obscenity because it may be brilliantly expressed, and we have too much shame to encourage the infamous licentiousness of the literary blasphemer, who formerly dared to crack his jest upon the divinity. . . . The great end of the stage should be to mingle instruction in such a manner with amusement, as constantly to interest the spectators in the cause of virtue.

Although this type of denunciation of Restoration drama appeared, as one would expect, also in pamphlets devoted to castigating the stage,⁸² similar objections were voiced by those whose professional aim was not so narrow. In his "Advertisement" to *The Country Girl*, Garrick showed that objections to Restoration drama were widespread:

There seems indeed an absolute Necessity for reforming many Plays of our most eminent Writers For no kind of Wit ought to be received as an Excuse for Immorality, nay it becomes still more dangerous in proportion as it is more witty—Without such a Reformation, our *English Comedies* must be reduced to a very small Number, and would pall by a too frequent Repetition, or what is worse, continue shameless in spite of publick Disapprobation.

Horace Walpole thought that Wycherley "naturalized French comedy, but prostituted it too. That chaste stage blushed at our translation of its best pieces."⁸³ George Colman considered that "The Moderns . . . have chosen things which the Antients would have considered with horror. Adultery has been looked upon by Wycherley, Congreve, and Vanbrugh, as a very good joke, and an inexhaustible fund of humour and pleasantry." Such treatment, he implied, was "rather irreconcilable to modern ideas of delicacy."⁸⁴ James Beattie, in an essay "On Laughter and Ludicrous Composition," though not so strongly emphasizing the

⁸¹XXXVII (February, 1768), 60

⁸²See, for example, *The Stage the High Road to Hell* (London, 1767)

⁸³*Works*, II, 315.

⁸⁴*Comedies of Terence*, trans. by George Colman, 2d Edition (London, 1768), II, 145n.

immorality of the comic drama, offered an objection to the comedies of such playwrights "who are blameable, not because they have made beastliness, robbery, lying, and adultery, ludicrous, (for that I believe was not in their power), but because they adorn their respective reprobates with engaging qualities to seduce others into imitation."²⁸

In 1772 and 1773 a series of letters and reviews in the *General Evening Post* offered a comprehensive review of the topic. On January 4-7, 1772, "Longinus" objected to the wit of the earlier comic dramatists, who had failed "to make instruction wear the garb of pleasure, and to charm our audiences into a passionate fondness for virtue." On January 16-18 "Jeremy Collier" argued that no "man of common sense would put the *Plain Dealer*, (as it stands in the original), *Love for Love*, or the *Provoked Wife*, into the hands of his daughter" and stated that his age was "acquiring a very just reputation by the banishment of those licentious, however witty comedies, which Wycherley, Congreve, Vanbrugh, and others of a similar turn have given the public" On January 30-February 1, "Honestes" expressed his belief that the drama was approaching perfection because of the greater moral value of the modern stage and referred to an author who, "though as an admirer of *wit* looks upon Wycherley, Congreve, and Vanbrugh with the deepest regards; yet as *dramatic authors* he holds them in the deepest contempt, for perverting the original end of the stage, and prostituting real abilities to the infamous purpose of immorality." Writing on May 23-26, 1772, "Crito" admired particularly "the good sense of our audiences in driving those buffooneries from the stage, which in imitation of the Greeks, our writers of the last century considered indispensably requisite in their comic productions. Dryden, Shadwell, Wycherley, Congreve, and Vanbrugh sacrificed their judgment to produce what they called humor; so a laugh was excited, they did not care how improperly."²⁹

²⁸*Essays* (Edinburgh, 1776), p. 661

²⁹This view persisted to the end of the century, it may be seen in a discussion of Wycherley's plays in the *Monthly Mirror*, I (March, 1796), 308-09, a comment quoted in "The *Plain Dealer* in the Eighteenth Century," p. 252, or in an essay on the modern stage in the same periodical in 1801, which traced the beginning of licentiousness on the stage by stating that "the root of the evil began to thrive with Beaumont and Fletcher, strengthened with Shakespeare and Old Ben (*vide* many of their worst scenes), from them was transmitted through D'Avenant, Otway, Wycherley, and others, till it attained its full growth under the auspices of Colley Cibber. . . . Since the revolution, by slow degrees, the British stage has visibly become refined; and, in its present state, I pronounce the

Although there are clearly some misconceptions among these writers concerning the nature and history of Restoration drama, it is clear that they were firmly convinced of the immorality of much of the drama transmitted to them by the preceding century and of the necessity of removing it from the stage or altering it.²⁷ Many plays were criticized for their moral lapses, and for those still being acted there was a demand for revision or banishment.²⁸ Included in these condemnations were Wycherley's comedies, and it was frequently argued that his plays had lost their place on the stage because of their licentious elements and that they could not possibly have been acted in the late eighteenth century without what one writer called "a careful, nay a *severe* revision."²⁹ In the *Public Ledger* for December 13, 1765, shortly after Bickerstaff's revision of *The Plain Dealer* had appeared, a correspondent stated that, though the original had wit, satire, and humor, it

was liable to many objections, but to none more than to want of decency, which rendered it to *sensible* auditors so disagreeable, that it lost its place in their esteem, which its great merit in other respects demanded; therefore, the alterer has, with great judgment, lopt the luxurious branches, yet preserved the trunk in its pristine strength and vigor; in short, he has stripped the character from whom the play derives its title, of his brutality, and adorned him with sensations wholly consistent with honour, manhood, and courage; and . . . he has so brought about the catastrophe, that nothing remains to offend the most delicate imagination.

In a review of the performance on October 19, 1771, the same paper emphasized the reason for the play's leaving the stage: "It had rather a vicious and immoral tendency, for which reason it was banished from the Stage by the public advocates for decency and good manners." In the *General Evening Post*, June 30-July 2, 1772, "Crito," explaining

theatre (though deformed by some excrescences) to be (under the pulpit) the grand national source of public moral instruction" (XI, 44).

²⁷There were, of course, many replies to the more extreme of these critics, and there were defenses of the comic dramatists of the past. But the defense did not, as a rule, deny their licentiousness.

²⁸That this demand ranged over a considerable variety of plays besides those of Wycherley and Congreve may be seen from the following list, which represents some of the plays named as needing alteration or banishment or as having once needed alteration: *Oroonoko* (*St. James's Chronicle*, Oct. 7-9, 1762), *Philaster* (*ibid.*, Oct. 8-11, 1763); *The Wonder* (*London Chronicle*, Dec. 11-13, 1766); *As You Like It* (*St. James's Chronicle*, April 2-5, 1768); *The Maid's Tragedy* (*ibid.*, April 7-9, 1768); *Romeo and Juliet* and *Venice Preserved* (*General Evening Post*, Jan. 16-18, 1772); *The Careless Husband* (*ibid.*, Jan. 28-30, 1772); *The London Cuckolds* (*ibid.*, April 14-16, 1772); *The Gamesters* (*Morning Chronicle*, Oct. 31, 1772); *The Provoked Wife* (*General Evening Post*, Dec. 10-12, 1772); *The Relapse* (*Morning Chronicle*, Feb. 26, 1777).

²⁹*General Evening Post*, August 4-6, 1772.

that Restoration comedies were banished because the approach of the dramatists was wrong, stated that the plays presented characters who were too wicked to be amusing, for "no character atrociously wicked can be properly set down as a cause for theatrical ridicule. Ridicule, in fact, ceases where criminality begins." *The Plain Dealer*, he argued, erred in this respect and warranted banishment: "It would be as strange a softness of expression to call Vernish in the *Plain Dealer* a ridiculous man, as to distinguish [the most notorious criminal] by the same epithet. We may chuckle heartily enough at things we despise; but where we hate, a more serious emotion is excited, and abhorrence immediately checks every impulse of risibility." *The Country Wife*, similarly, had lost its place because of its objectionable qualities; the *Public Ledger*, discussing a performance of *The Country Girl* on December 30, 1771, stated that the original "has been long thrown aside, and very justly, on account of its vicious tendency." Thomas Davies termed it "the most licentious play in the English language,"⁴⁰ and the *Critical Review* stated that "Wycherley . . . has not left us a single play fit for representation under the present regulations of the stage, regulations which the gradual refinement of the public taste has made necessary."⁴¹ In 1791 it was stated that Garrick in revising it found himself "reduced to the necessity of lopping off a limb (HORNER) to save the whole from putrefaction."⁴²

It is clear, I believe, that the later years of the century held these two opinions (among others) concerning Restoration comedy: (1) many plays had lost their place on the stage because of their coarseness and licentiousness, and (2) they could not be restored without alteration to make them acceptable to what was considered a more refined taste. The second of these beliefs seems to be pretty well substantiated by what happened in the playhouses. Wycherley's plays, dropping out of the repertory in the early 1750's, were revised before they reappeared; in 1775 and 1776 Congreve's comedies, some of which had been unacted for several years and had been similarly arraigned for their immorality, were revised before restoration; and some of Vanbrugh's comedies underwent alteration. Certainly, there was much revision of plays, and the later portion of the century seems to have been convinced that only through alteration could many dramas receive a favorable reception in the theaters.

⁴⁰*Memoirs of the Life of David Garrick, Esq* (London, 1780), II, 120-21

⁴¹XXII (1766), 378-79.

⁴²*The Country Girl*, Bell's edition (1791).

The other of these opinions—that the licentiousness of the plays cost them their place in the active repertory—seems a partial rather than a full explanation for the disappearance of the plays. It may be true that this quality in the drama was an underlying factor in the changing attitude during the century toward Restoration drama, but it does not account for the variations in the popularity of individual plays and it seems that, at times, the later decades of the century tended to attribute to earlier decades their own reasons for finding the plays unsuitable. By tracing the stage history of Wycherley's plays and the criticism of them, it will appear, I believe, that a combination of causes rather than a single one culminated in the decline of his comedies.

When his plays came into the eighteenth century, they brought with them a reputation which was based on a rather successful stage career and favorable criticism during the seventeenth century and which was also affected by the censure heaped upon them by Jeremy Collier and his fellow moralists. For a few years in the early 1700's Wycherley's comedies had only a small share in the repertory, partly to be explained, it would seem, by the fact that moralistic censure hung over them, as it did over Congreve's as well, and partly, perhaps, by the fact that competition among the theaters was not so pronounced as it was later. There were, of course, continued objections in the opening decades of the century to the licentiousness of the drama,⁴³ but the moralistic movement was not then sufficiently strong among the influential elements of society to cause the abandonment of plays which, even though they contained licentious elements, provided satisfactory entertainment with their wit, humor, and characterizations to a generation not greatly removed in spirit and taste from that which first witnessed the comedies. And the stock of dramas was, of necessity, drawn considerably from plays produced after 1660.

Competition between the theaters during and after 1714-15 not only emphasized the need for a more varied repertory but it also introduced players anxious to find new roles for themselves; and Wycherley's comedies took on new life. Rivalry between Drury Lane and Lincoln's Inn Fields in offering *The Country Wife* gave it several good seasons, and James Quin's assumptions of roles in it and *The Plain Dealer* assured them of a capable actor for their principal char-

⁴³The movement appears most clearly in such moralists as Jeremy Collier, Arthur Bedford, and William Law, but it is present also in a periodical like the *Universal Spectator*, which, in the 1730's, often expressed alarm at the indecencies of many plays, particularly the older ones.

actors. Nevertheless, by the end of each new theatrical season new plays had entered the repertory; some, like *The Beaux Stratagem*, *The Recruiting Officer*, *The Beggar's Opera*, and *The Provoked Husband*, were so popular that they competed vigorously with the older plays for places in the repertory. Others, like *The Conscious Lovers* and *The London Merchant*, emphasized themes and treatments which offered a different and, to many, a more satisfying theatrical fare. These factors affected all the older plays, including Wycherley's, but the weakness of his plays as elements in the competitive repertory began to appear in their frequently drawing only moderate or low receipts at the box office and in their failure to be taken up by the newer playhouses, like Goodman's Fields or the Little Haymarket, and, eventually, by the newer actors, like David Garrick. In the 1730's and 1740's a combination of events helped to crowd Wycherley's comedies from the stage. Their showing at the boxing office, Goodman's Fields' inattention to them, the failure of Drury Lane to create a competent cast to succeed the Wilks-Mills-Cibber combination in *The Country Wife* and the Booth-Cibber-Norris one in *The Plain Dealer*, and the competition of new plays were adverse factors. Then, in the 1740's the rise of Garrick tended to crowd the older school of actors into the background, and although Quin gave Wycherley's comedies an increased number of performances as he exerted himself to meet Garrick's threat to his prestige, they did not long survive Quin's failure to down his rival, for no actor of comparable power undertook his roles in Wycherley's plays. By the middle of the century, also, the moralistic censure was gaining in strength. Garrick as a stage manager, for example, was susceptible to the pressure to improve the stage by eliminating plays found unsuitable⁴⁴ or by the revision of others to accommodate them to the ruling taste. By mid-century, too, the theaters were limited by the effects of the Licensing Act to two, a monopoly which, as more and more new plays entered the repertory, permitted only the strongest and most acceptable of the older ones to survive, and which, in due time, imposed a censorship on new plays which sometimes emphasized the elimination of elements which might displease the moralists.

These factors affected many older plays, but not with equal force. Wycherley's comedies, for example, left the stage before Congreve's comedies, upon which not all these factors operated in the same way

⁴⁴Apparently Garrick's reason for dropping *The London Cuckolds*, which by custom had come to be offered on the Lord Mayor's Day, was the many objections to its immorality.

as they did upon Wycherley's. Congreve's, for example, were more popular in the early eighteenth century than were Wycherley's and had a more widely diffused vogue; acted year after year, most of Congreve's plays were recast in strength as actors left the stage and new ones appeared; David Garrick as an actor undertook parts in three of Congreve's plays but in none of Wycherley's; and, in some respects, Congreve's were not quite so obviously open to moral censure. It would appear from the criticism and revisions of Wycherley's plays that they were more liable to disapproval because they contained situations (like the "China" scene in *The Country Wife*) or characters (Horner, Vernish, Manly) which were not only distasteful to the "sensible auditors," as one writer put it, but which could not easily be purified without radical alteration of the character or the play. On the other hand, Congreve's plays, when revised, suffered only minor changes compared with those in Wycherley's. Generally speaking, the comedies of Congreve were altered by the elimination of words, phrases, and (occasionally) short scenes, but not by such fundamental changes as Garrick made when he turned *The Country Wife* into *The Country Girl*.

On the whole, it would seem, then, that the reputation of Wycherley's plays was affected by a diversity of factors. Beyond doubt, the late eighteenth century was right in asserting that its greater sensitivity to the licentious would not permit it to accept Wycherley's comedies without alteration, a supposition which seems borne out by the fact that they were not revived, successfully or unsuccessfully, in their original state after they had left the stage in 1753. His plays had survived the earlier (Jeremy Collier) attack upon their morality, but the argument of the late eighteenth century that their licentiousness had deprived them of their place in the mid-century repertory seems to substitute a deep underlying cause for the more immediate ones. If that were the single cause, nearly all Restoration comedies would have been banished; and the explanation does not account for the variations in popularity among plays which were similarly objectionable. In fact, the plays of each writer offer, in the detailed appraisal, separate problems; and Wycherley's, because of differences in their intrinsic popularity, their moral outlook, their casting, their showing at the box office, and their relationship with other plays and with theaters and actors, failed to remain on the stage as long as those of Congreve or Vanbrugh.

JOSEPH CONRAD'S CRITICAL VIEWS

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There have been several studies of the sources of Conrad's novels and also comparisons of two or more versions of certain novels to reveal alterations of his style.¹ There have been, also, interpretations of the philosophy underlying specific works.² My aim here is through an examination of Conrad's correspondence, prefaces, and articles on literature, as well as his novels, to present his views of the proper function and method of fiction. Such an examination is complicated but made more interesting because, though much of what he said is in accord with the views of one or another school, Conrad did not belong to any one school and was not learned in the history of criticism; in fact, he seems to have read little or no formal literary criticism.

Conrad's fiction grew from his feeling that he himself had had experiences which he should express in artistic form in order to comprehend them; hence it developed from an unusually strong urge or even a necessity.³ As it was a highly individual interpretation of experience, it required notable individual departures in method. Conscious of his own purpose and his departures, the novelist tried to explain them in letters and essays and, occasionally, in the novels themselves. The explanations are sometimes fragmentary, being concerned with perhaps one specific point, but collectively they comprise a significant, coherent contribution to literary criticism.

Only part of Conrad's philosophy of life is relevant here, but that part is fundamental for his views on the purpose and art of fiction. Primary in importance was his conviction that the dominating sources of experience and motivations of action were instinct, emotion, and sensation. He distrusted any pattern or theory of life

¹Notably J. D. Gordan, *Joseph Conrad the Making of a Novelist* (Cambridge, 1940); G. W. Whiting, "Conrad's Revision of *Lord Jim*," *English Journal*, College Ed., XXIII (1934), 824 ff.; Whiting, "Conrad's Revision of 'The Lighthouse' in *Nostromo*," *Publications of the Modern Language Association*, LII (1937), 1183-90.

²Gordan, *ibid*; Wm. W. Bancroft, *Joseph Conrad, His Philosophy of Life* (Philadelphia, 1933); R. Curle, *Joseph Conrad. a Study* (New York, 1914), etc.

³*A Personal Record, passim.*

which contradicted or repressed instinct, and he singled out Tolstoi's anti-sensualism as "suspect."⁴ In politics he deplored the dogma of socialism, for example, along with all other intellectually developed schemes for political reform, yet suggested that as an "emotion" socialism might exalt the revolutionist.⁵ Most important was his reiterated belief, which had implications in every phase of his creative work, that the source of profound insight into the universe and man's place in it was emotion and sensation. Whether or not he took the phrase directly from Keats, he appropriated "truth of my own sensations" to describe the touchstone he applied to all art⁶; and he wrote of "fidelity to passing emotions" as the nearest approach to truth.⁷

In believing in the force of instinct, Conrad found a balance which prevented, on the one hand, optimism and sentimentality and, on the other, pessimism and brutality. Particularly in his early writings he spoke of the "human imbecility" and the "cowardice" of men,⁸ and his novels portray numerous persons to whom these and like terms apply. He found in strikes and war startling evidence that man's lowest nature cannot be destroyed.⁹ Believing that "instinct alone is invariable,"¹⁰ he discounted attempts to improve man by institutions. Revolutionism seemed to him "hard, absolute optimism," Utopianism only a new form of violent, anarchic tyranny; world federation ignored man's desire to "assert his power by achievement, . . . mostly base," and was impossible where even the people on one city street could not work together¹¹; and

⁴Letter to Garnett, Feb. 23, 1914, Edward Garnett, *Letters from Joseph Conrad* 1895-1924 (Indianapolis, 1928), p. 245.

⁵To S. Kliszczewski, Dec. 19, 1885, G. Jean-Aubry, *Joseph Conrad, Life and Letters* (New York, 1927), I, 84. "Anatole France" (1904), *Notes on Life and Letters*, Malay ed. (New York, 1928), p. 37.

⁶Author's Note, 1919, *Typhoon*, p. ix, Author's Note, 1920, *Within the Tides*, p. viii.

⁷To Garnett, Mar. 23, 1896, *ed. cit.*, p. 46.

⁸To R. B. Cunninghame Graham, Feb. n.d., 1898, Jean-Aubry, *ed. cit.*, I, 229. To H. G. Wells, May ?, 1904, *ibid.*, I, 329.

⁹To Cunninghame Graham, Oct. 14, 1899, *ibid.*, I, 284. To J. B. Pinker, Sept. 25, 1908, *ibid.*, II, 207, *et passim*.

¹⁰Author's Note (after 1917), *Notes on Life and Letters*, p. vii.

¹¹"A Familiar Preface," 1919? *A Personal Record*, pp. xxi-xxii. Author's Note, 1920, *Under Western Eyes*, p. x. To Hugh Clifford, Jan. 25, 1919, Jean-Aubry, *ed. cit.*, II, 217. To Garnett, Sept. 24, 1895, *ed. cit.*, p. 42. To Cunninghame Graham, Feb. 8, 1899, Jean-Aubry, *ed. cit.*, I, 269.

Christianity itself, which he called an "oriental fable," had been subjected to "cruel distortion."¹²

At the same time, he believed pessimism hopelessly barren and protested that his own fiction was neither brutal nor pessimistic, because it never violated "basic feelings and elementary convictions" which make man generally decent and may lead to sublimity of character.¹³ To be hopeful, he wrote, one should realize that the world can be made good.¹⁴ He was interested in the Napoleonic era because of its "exaltation of sentiment" and "naively heroic" faith.¹⁵ Captain Anthony's life he found meaningful simply in that Anthony was seeking a "wisp of mist," and he suggested that his own attempt to write of Anthony was a search for a similar wisp.¹⁶ Idealism was, then, one of man's basic feelings and convictions. Another, which underlies much of Conrad's work, particularly *Lord Jim* and the dénouement of *Victory*, was a faith in the "solidarity of mankind."¹⁷ Jim loses kinship with man and must regain it. Only after renouncing skeptical indifference to his fellowmen does Heyst find meaning in life.

The thing that prevented Conrad's insistence on the precious nature of the idealistic search and of solidarity from implying sentimental humanitarianism was what he considered to be the function of experience. This was not kindness or self-sacrifice *per se*. It was the discovery of one's own identity. To achieve this revelation man must, Conrad believed, accomplish three spiritual tasks, each of which was illustrated in his tales. He must develop an admiration for the marvels and mysteries of nature.¹⁸ A "passion" for the sea was, to Conrad, true reality, and he and his characters were fascinated by the inlets and jungles of Malaya. In such a feeling of

¹²To Garnett, Feb. 23, 1914, *ibid.*, p. 245

¹³Author's Note, 1920, *Chance*, p. xii

¹⁴"Books," 1905, *Notes on Life and Letters*, pp. 8-9

¹⁵Author's Note, 1920, *A Set of Six*, p. xi

¹⁶Author's Note, *Chance*, p. x

¹⁷Preface, 1897, *The Nigger of the 'Narcissus'*, pp. xii, xiv-xv; *Chance*, p. x. "When one well understands that in oneself one is nothing and that a man is worth neither more nor less than the work he accomplishes with honesty of purpose and means, and within the strict limits of his duty towards society, only then is one the master of his conscience, with the right to call himself a man." September 4, 1892—J. A. Gee and P. J. Sturm, *Letters to Mme. Poradowska* (New Haven, 1940), pp. 45-46.

¹⁸Author's Note, 1919, *A Mirror of the Sea*, p. viii; Author's Note, 1920, *The Shadow Line*, p. vii

awe they stripped their consciousness to essentials. Secondly, man must identify himself with mankind—believe in solidarity—to determine his own racial heritage and fit into a social as well as natural world.¹⁹ Finally, for complete clarification of personality, he must, in the language of Stein, "in the destructive element immerse."²⁰ Most of Conrad's heroes have, at the beginning, bewildering, inconsistent personalities. The bewilderment may arise from a conflict of ruthlessness and delicacy or of two forms of emotion.²¹ It may spring from failure to adjust one's dream and reality, as in *Lord Jim*. In the man who suggested Willems it was manifested in an "air of futile mystery."²² Those who, like Jim and the commanding officers of *The Secret Sharer* and *The Shadow Line*, do "immerse," discover themselves and their place in the universal scheme. Substituting "resignation" for "immersion," Conrad wrote in *A Personal Record*:

Resignation, not mystic, not detached, but resignation open-eyed, conscious, and informed by love, is the only one of our feelings for which it is impossible to become a sham.²³

It alone made one consistent and able to predict his own actions under any test that fate might provide.

From the fact that resignation was not innate in man, but must be learned arose the tragedy of human life. Having already written several excellent novels on tragic themes, Conrad, in 1898, pointed out the inevitability of tragedy for men:

What makes mankind tragic is not that they are the victims of nature, it is that they are conscious of it. To be part of the animal kingdom under the conditions of this earth is very well,—but as soon as you know of your slavery, the pain, the anger, the strife,—the tragedy begins. . . . There is no morality, no knowledge and no hope: there is only the consciousness of ourselves which drives us about a world that, whether seen in a convex or a concave mirror, is always but a vain and floating appearance.²⁴

Tragedy, then, resulted from assertion of self-conscious personality in opposition to nature. Immersion, for Stein and eventually for Jim, meant loss of consciousness of themselves as "victims" and identifica-

¹⁹Author's Note, 1920, *The Secret Agent*, pp. ix-x; *Lord Jim*; *Victory*; etc.

²⁰*Lord Jim*, p. 214.

²¹Author's Note, 1919, *Typhoon*, p. x, in reference to Falk; *The Lagoon*.

²²Author's Note, 1919, *An Outcast of the Islands*, p. ix.

²³*Ed. cit.*, p. xxi.

²⁴To Cunninghame Graham, Jan. 31, 1898, Jean-Aubry, *ed. cit.*, I, 226.

tion with, or resignation to, nature. Conrad was, therefore, restating and amplifying a well-known theory of tragedy. The phrase "no morality, no knowledge and no hope" may be taken, in the light of his own ethically sound creations and his rejection of cynicism or pessimism, to mean simply no power—even in art—of attaining to absolute knowledge or moral wisdom.

From Conrad's philosophy of life to his views on the general function of literature the transition is very simple. Just as his fiction grew from an effort to interpret life, especially tragedy, so his literary criticism never lost touch with that primary purpose. In the preface to *The Nigger of the "Narcissus,"* 1897, he defined art as an "attempt to render the highest kind of justice to the visible universe":

. . . to find in its forms, in its colours, in its light, in its shadows, in the aspects of matter and in the facts of life what of each is fundamental, what is enduring and essential—their one illuminating and convincing quality—the very truth of their existence.²⁶

Twenty years later he wrote, ". . . all my concern has been with the 'ideal' value of things, events and people."²⁷ In art alone as an effort to interpret the ideal, he found a "meaning in endeavor as apart from success."²⁸ He regarded the art of fiction, specifically, as greater than history, since it was "based on the reality of forms and the observation of social phenomena" rather than on documents.²⁹

To interpret the "ideal value" or essential of life, fiction was to concern itself with instinct, emotion, and sensation:

The pursuit of happiness by means lawful and unlawful, through resignation or revolt, . . . is the only theme that can be legitimately developed by the novelist.³⁰

Like other important writers before him, Conrad regarded this theme of man's aspirations and quest as primarily the subject of art rather than of science. Pointing to the fact that, in watching a sunset, a man feels with Ptolemy, not Copernicus, he added:

In the same way a poet hears, reads, and believes a thousand undeniable truths which have not yet got into his blood. . . . Life and the arts follow dark courses, and will not turn aside to the brilliant arc-lights of science.³¹

²⁶*Ed. cit.*, p. xi.

²⁷To Sidney Colvin, March 18, 1917, Jean-Aubry, *ed. cit.*, II, 185.

²⁸To Garnett, Aug. 28, 1917, *ed. cit.*, p. 102.

²⁹Henry James, 1905, *Notes on Life and Letters*, p. 17.

³⁰Books, *ibid.*, p. 6.

³¹"The Ascending Effort," 1910, *ibid.*, p. 74.

Concerned with "temperament," or that part of man's personality not encompassed in reason, fiction must appeal through the senses.⁸¹ Hence Conrad, again in the preface to *The Nigger of the "Narcissus,"* gave his now famous definition of his artistic aim and approach to his work:

My task which I am trying to achieve is, by the power of the written word to make you hear, to make you feel—it is, before all, to make you see.⁸²

The full implication of *see*, as something quite different from mere cognition, is revealed in another passage of the same preface, a sentence which has implications in all phases of his criticism:

He [the artist] speaks to our capacity for delight and wonder, to the sense of mystery surrounding our lives; to our sense of pity, and beauty, and pain, to the latent feeling of fellowship with all creation—and to the subtle but invincible conviction of solidarity that knits together the loneliness of innumerable hearts, to the solidarity in dreams, in joy, in sorrow, in aspirations, in illusions, in hope, in fear, which binds men to each other, which binds together all humanity.⁸³

Conrad found one or another of these appeals in a highly varied selection of authors. He liked the sheer adventure stories of Marryat, for example, for their "youthful glamour" and "headlong vitality," the elemental sea tales of Cooper for their "profound sympathy,"⁸⁴ the descriptive sketches of Hudson, a true "nature-production,"⁸⁵ Jack London's stories of men against nature, and apparently those of Hamlin Garland.⁸⁶ He was enthusiastic about the travel books of his friend Cunninghame Graham.⁸⁷ But he also liked the novels of James and later of Proust, for their delicate and precise psychological analysis.⁸⁸ Among the scores of writers upon whom he expressed an opinion there were, however, very few—Anatole France is the main exception—who were satirists or light humorists. He did not like Shaw,⁸⁹ and he was not interested in Meredith or Butler, Swift, or Rabelais, who appealed first to the reason.

⁸¹Preface, *The Nigger of the "Narcissus,"* p. xiii

⁸²*Ibid.*, p. xiv

⁸³*Ibid.*, p. xii.

⁸⁴"Tales of the Sea," 1898, *Notes on Life and Letters*, p. 57, and Jean-Aubry, *ed. cit.*, *passim*.

⁸⁵To Garnett, Aug. 22, 1922, *ed. cit.*, p. 285

⁸⁶To Garnett, March 10, 1923, *ed. cit.*, p. 289. To Bendz, March 7, 1923, Jean-Aubry, *ed. cit.*, II, 295.

⁸⁷To Mrs. Bontine, Dec. 4, 1898, Jean-Aubry, *ed. cit.*, I, 258 *et passim*.

⁸⁸"Henry James," *ed. cit.*, and Garnett and Jean-Aubry, *passim*

⁸⁹Garnett, *ed. cit.*, pp. 25-26.

Conrad emphasized with a sense of newness the fact that a writer must reach all kinds of men:

... what I always feared most was drifting unconsciously into the position of a writer for a limited coterie, a position which would have been odious to me as throwing a doubt on the soundness of my belief in the solidarity of all mankind in simple ideas and in sincere emotions⁴⁰

Press or publishers' notices labeling him a "spinner of sea yarns" or "master mariner" enraged him. He admired Bridges for his appeal to "mankind, not a certain kind of man."⁴¹ On the other hand, he accused Kipling of having only "the wisdom of the passing generations,"⁴² and he chided Wells for setting up a "high priesthood in a clique."⁴³

As to the moral or ethical value of literature, Conrad agreed generally with most other great writers. He was concerned, of course, only with art that appealed to emotion and instinct. Such art might appeal at various levels, the lowest didactic and the highest symbolic, with the ethical value inherent in the artistic process itself.⁴⁴ The reader might be impelled by ethical concern or by "simple curiosity" and find "both a moral and an excitement" in a "faithful rendering of life."⁴⁵ The nature of the artist's ethical responsibility Conrad summed up in a tribute to the artistic integrity of De Maupassant, in whose works he found "the interest of curiosity and the moral of a point of view consistently preserved and never obtruded for the end of personal gratification."⁴⁶ Several years later, he was shocked by a telegram asking whether *The Rescue* had "any message for the young":

Could anything be more silly and, especially, to a man like me who had never flapped any "message" in the face of the world? I controlled my feelings and wired a reply to the effect that "in a work exclusively artistic in its aim to appeal to emotions there should be something for everybody, young or old, who was at all susceptible to aesthetic impressions."⁴⁷

Fundamentally, then, for a writer of fiction, the "faithful rendering of truth" was the one and only ethical rule, the sole artistic purpose.

⁴⁰Author's Note, *Chance*, pp x-xi

⁴¹To Garnett, Nov. 26, 1897, *ed cit.*, p 118.

⁴²To Cunninghame Graham, Aug. 5, 1897, Jean-Aubry, *ed cit.*, I, 208.

⁴³To Wells, n. d., 1904, Jean-Aubry, *ed cit.*, I, 329.

⁴⁴Author's Note, *Chance*, pp xi-xii; to Barrett Clark, May 4, 1918, Jean-Aubry, *ed. cit.*, II, 204-05

⁴⁵Guy de Maupassant, 1904, *Notes on Life and Letters*, p 26.

⁴⁶*Ibid.*

⁴⁷To Hugh Dent, June 24, 1920, Jean-Aubry, *ed cit.*, II, 242.

Out of a writer's aim must develop his method, and consequently it is not surprising that Conrad, in turning his attention to the method of fiction, stressed the importance of trustworthiness in every step of the process of composition. He offered several suggestions as to the principles to be followed in revealing the truth and the falsifications often mistaken for it. Among the last was the intrusion of the author for didactic or sentimental purposes, since this meant arbitrary shifting of the artist's point of view and denial of the true inevitability of events. Conrad would have agreed with Hardy when the latter sentenced Tess to execution with the remark "It had to be." With sterner integrity than Hardy showed in the patched-up ending of *The Return of the Native*, he refused to tamper with *Freya of the Seven Isles* to contrive the happy ending which the *Century Magazine* had demanded.⁴⁸ He was impatient, too, with preaching and all forms of dogma, as these were assertions of the author's own personality. In his presentation of socialism he tried to focus on the motivating spirit and to keep out his opposition to the theory.⁴⁹ His master in this instance was Anatole France. Ibsen, on the other hand, he disliked as too didactic; it did not matter to him whether Ibsen's views were in themselves valid.⁵⁰

Most grievous of all, for a writer appealing to emotion, was emotional extravagance, whether of brutality or of sentimental compassion. In trying to get a standard by which to judge the genuineness of emotion in a novel, Conrad was on uncertain ground. He insisted that literature must be true, yet he could not test for distortion on an objective or rational basis. What constituted extravagance of emotion? His own letters are an object lesson in its dangers. Sometimes he wrote carefully analytic and essentially rational interpretations of his own and other fiction, and these have the same validity as his prefaces and other essays. At other times he burst forth in superlatives about the worthlessness of whatever novel he happened to be writing and about the genius of the works of his correspondent. Perhaps because of the training he gained from Garnett's criticism of Conrad's own manuscripts, he was able to hit at once on the weakness in the writing

⁴⁸"I would see all the American magazines and all the American Editors damned in heaps before lifting my pen for that task." To Garnett, Aug. 4, 1911, *ed. cit.*, p. 231.

⁴⁹To Cunningham Graham, Oct. 7, 1907, Jean-Aubry, *ed. cit.*, II, 60; Author's Note, 1920, *Under Western Eyes*, pp. vii-x.

⁵⁰To Galsworthy, Oct. 24, 1907, Jean-Aubry, *ed. cit.*, II, 62.

of Wells, Galsworthy, and Garnett himself, but he seems really to have meant the unbounded praise he wrote Mme. Poradowska on her trivial romances. About many personal matters, such as ill health and the trials of composition, he wrote with the same lack of restraint.

Though Conrad then could not draw a clear distinction between legitimate artistic intensification and exaggeration of emotion, one can, nevertheless, find in his criticism a working principle which he tried to follow. It is illustrated most simply in his attitude toward three authors. The first, Henry James, he admired for his restrained, unsentimental style and significant theme. Yet Conrad admitted that James was "not forcible" and that his novels were too "civilized" and showed "too much perfection of method"⁸¹ At the other extreme was Dostoevski, whom, he confessed, he could not understand, yet did not hesitate to call "convulsed terror-haunted" and to regard as unworthy of translation.⁸² Though often concerned with psychological problems like some in Dostoevski's novels,⁸³ he refused to follow the Russian novelist through the "terrifically bad and impressive and exasperating" *Brothers Karamazov*: "It sounds to me like some fierce mouthings from prehistoric ages"⁸⁴ In the light of what he said about the third author and about himself, he appears to have rejected, as sentimental, the emotional convolutions of Dostoevski's heroes.⁸⁵ Fiction, in delving profoundly into personality, was to retain a balance between sympathy for a soul-tortured hero and a philosophy leading to normal action. Lord Jim, for example, in his anguish, enlisted a reader's compassion, but Stein and Marlowe helped keep the perspective. Whether Conrad was as deep as Dostoevski and whether the latter was actually guilty of "mouthing" are matters of opinion. It seems, in any event, that, in trying to portray complex personalities, Conrad was afraid of losing an artistic grip on his materials, and that his emphatic condemnation of Dostoevski was, in a way, self-warning. The perfectly balanced artist was Turgenev, who possessed both "absolute sanity and the deepest sensibility . . . the clearest mind, the warmest heart, the largest sympathy—and all that in perfect measure"⁸⁶ It was Turgenev's

⁸¹To Galsworthy, Feb. 11, 1899, Jean-Aubry, ed. cit., I, 271.

⁸²"Turgenev," 1917, *Notes on Life and Letters*, p. 48. This rephrases a letter to Garnett, May, 1917, ed. cit., p. 249.

⁸³Raphael Bluth, "Joseph Conrad et Dostoevski. le problème du crime et du châtiment, *Vie Intellectuelle*," XII (1931), 320-39.

⁸⁴To Garnett, May 27, 1912, ed. cit., p. 240.

⁸⁵He would also have doubted Dostoevski's mystical Christianity. Cf. *supra*.

restraint, like De Maupassant's and Anatole France's, which was, for Conrad, sanity—restraint that, without leading to coldness or lack of interest, prevented undisciplined floundering in emotion.

Conrad himself tried to preserve such restraint and to describe pathetic situations dispassionately. Against the charge that, in so doing, he was guilty of cynicism and brutality he maintained that he simply kept a proper artistic perspective, instead of indulging in extravagant sentimentality. He felt this so much that on successive days he wrote essentially the same argument to Garnett and to Symons, and he restated part of it many times thereafter:

One thing that I am certain of is that I have approached the object of my task, things human, in a spirit of piety. The earth is a temple where there is going on a mystery play, childish and poignant, ridiculous and awful enough, in all conscience. Once in I've tried to behave decently I have not degraded any quasi-religious sentiment by tears and groans, and if I have been amused or indignant, I've neither grinned nor gnashed my teeth. In other words, I've tried to write with dignity, not out of regard for myself, but for the sake of the spectacle, the play with an obscure beginning and an unfathomable *dénouement*.

It is your penitent beating the floor with his forehead and the ecstatic worshipper at the rails that are obvious to the public eye. The man standing quietly in the shadow of the pillar, if noticed at all, runs the risk of being suspected of sinister designs. Thus I've been called a heartless wretch, a man without ideals and a *poseur* of brutality."

The conception of an author as standing detached by a pillar viewing the spectacle is perhaps evident enough when the author is, like Galsworthy, interested mainly in realistic observation of a social world, but it is subtler for Conrad himself, who believed that his approach to reality was romantic⁸⁸ and that his source of truth was autobiography, with no objective touchstone to test its validity. "The creator," he once wrote, "can only express himself in his creation."⁸⁹ How was an autobiographic writer to proceed to interpret life? What means could he have of arriving at artistic expression of truth instead of indulging in mere literal exploitation of personal experience? Conrad's answer is to be found in his conception of autobiography.

An autobiographic novelist, he maintained, must be true to his own sensations and, through re-examining these, create a world in

⁸⁸"Turgenev," *ed cit.*, p. 48, to Garnett, May, 1917, *ed cit.*, p. 249.

⁸⁹To Symons, Aug. 29, 1908, Jean-Aubry, *ed cit.*, II, 83-4; to Garnett, Aug. 28, 1908, *ed cit.*, p. 214.

⁹⁰Author's Note, 1920, *Within the Tides*, p. vii.

⁹¹A Familiar Preface, *ed. cit.*, p. xviii.

which he could believe.⁶⁰ Concerning *The Mirror of the Sea*, he explained, "Within these pages I make a full confession not of my sins but of my emotions."⁶¹

The perspective of the confession here is the same as that in *The Shadow Line*, which symbolically projected the novelist's own change from youth to maturity

. as a matter of fact it [*The Shadow Line*] is personal experience seen in perspective with the eye of the mind and coloured by that affection one can't help feeling for such events of one's life as one has no reason to be ashamed of . . . The effect of perspective in memory is to make things loom large because the essentials stand out isolated from their surroundings of insignificant daily facts which have naturally faded out of one's mind.⁶²

This shifting of importance seems natural in *The Shadow Line*, a novel with a plot, and in *The Mirror of the Sea*, a lyric expression. The same method is employed, to a most unusual degree, in *A Personal Record*, which, in intensifying certain events of importance in his literary development, includes fictitious details and transforms incidents, yet is, in Conrad's opinion, authentic autobiography. It was not really important whether the incidents had occurred exactly as recorded; it was sufficient that Conrad should sense them as if they had. Conrad's friend and collaborator, Ford, agreed with him entirely in this indifference to the division between what was and what seemed. In his biography of Conrad, he insisted that, even when documents showed that his statements were wrong, he ignored them because real biography was not what one could prove that a man had done, but what one felt that he had done or even that he might have done.⁶³

Which influenced the other is not absolutely demonstrable, though, in the transformations of fact, Ford was self-conscious and Conrad was not. What is important is that autobiographic writing was, for Conrad, recall of actual events and the rearranging of these, with insertion of possible causes and then of proper results of these causes, till ultimately the author had created a new world only incidentally like the first and yet not clearly discernible from it. The rearranging was autobiography quite as much as the recall, because it was determined by the writer's own convictions—themselves dependent on instinct,

⁶⁰"Books," *Notes on Life and Letters*, p. 6.

⁶¹Author's Note, *ed. cit.*, p. ix.

⁶²Author's Note, 1920, *The Shadow Line*, p. ix.

⁶³Ford Madox Ford, *Joseph Conrad, a Personal Remembrance* (Boston, 1925), *passim*.

emotion, and sensitivity. It is easy here to indulge in equivocation of terminology and conclude that all fiction is autobiographic, that no author can find a standard outside himself to give him perspective; but Conrad did not so use the word. A story like *The Return* or *The Secret Agent* he would not call autobiography.⁶⁴ Most of the Malay tales, *Typhoon*, and *The Nigger of the "Narcissus"* he would. *Nostromo* was autobiography to the extent that specific persons and types of incidents were based on recall.⁶⁵ But Conrad was not sure of the truth in the first two.⁶⁶ He was convinced, on the other hand, that *The Nigger of the "Narcissus," The Shadow Line, Typhoon*, and *The Secret Sharer* were true, and readers have generally agreed with him in both judgments. The latter tales, in presenting his own experiences temperamentally and artistically transformed, described a world in which he could believe. In writing them he had created.

Sometimes Conrad fell short of artistic excellence and had to have his failure pointed out by Garnett or a reviewer. His typical comment at such a time was that the fault was indeed glaring, but that he had not seen it before because it was one of temperament.⁶⁷ In short, his autobiographic method was by no means infallible in interpreting the truth, and it needed the check provided by objective criticism, but it was the only way in which he could be profound at all.

When an author had become convinced that he did have a profound truth to impart, he must, according to Conrad, keep certain general principles in mind in presenting it. He must separate universality from what dazzled the eye.⁶⁸ To do so he must veil part of the truth to reveal the rest⁶⁹; and since he could not interpret the universe as a whole, he must suggest the universal through a "passing phase."⁷⁰ To be sure, these were commonplaces of criticism, as other critics had stated the same principles and obviously all important creative writers had followed them. Once again, however, they assumed a fresh significance as Conrad applied them to specific aspects of his own creative writing.

⁶⁴Of *The Secret Agent* he wrote to Mme Poradowska, June 20, 1912, "I know almost nothing of the philosophy, and nothing at all of the men. I created this out of whole cloth." Gee and Sturm, *ed cit*, p. 116.

⁶⁵Cf prefaces to these novels

⁶⁶To Garnett, Jan 24, 1898, *ed cit*, p. 129; Oct. 1, 1907, p. 204

⁶⁷*Ibid*.

⁶⁸Author's Note, 1895, *Almayer's Folly*, p. ix.

⁶⁹"An Observer in Malaya," 1898, *Notes on Life and Letters*, p. 60.

⁷⁰Preface, *The Nigger of the "Narcissus,"* xiv

An author's task was to select a milieu and situation in which an important truth was strikingly expressed. The struggling of a ship in a gale, a conflict of motives where Westerners and Malay natives met, a revolution, the intense loneliness of central Africa, and the "astonishing atmosphere" of the Second Empire were typical of appropriate subjects.⁷¹ In depicting them, the author was to use the local scene and limited time as a painter would use a canvas—merely as a vehicle for symbolizing a universal truth. It was in such a way that Turgenev made use of Russian scenes,⁷² and Conrad himself of life in the forecandle of the *Narcissus*.

Since many of his own tales were laid in out-of-the-way places, which on the surface bore little resemblance to conventional western European scenes, they were sometimes reviewed as stories of local color. Conrad protested, since his view ruled out local color as a mere source of novelty.⁷³ At first, to be sure, he was not severe in such exclusion, and the somewhat florid descriptive style of his early books occasionally intruded. Later, however, he conscientiously subordinated the purely local aspects of a scene.⁷⁴ He was disturbed also by most contemporary travel books except Cunninghame Graham's, because they accentuated incidental characteristics of the scenes they described.⁷⁵

An author was not to escape from the complex civilization in which he and his readers lived just for freedom in artistic expression. Unfamiliar scenes and happenings brought their own problems. Their very newness could dazzle, and so the author must see beyond it, as Conrad believed he could in Malaysia. The strangeness also made more difficult the task of giving credibility to incidents and situations outside a reader's ordinary knowledge. Hence sprang the importance of atmosphere, not conveyed in crude, general strokes, but subtly developed to build a plausible frame for unusual action.⁷⁶ The resultant atmosphere was to be distinguished from that of the actual places the author used as sources. Although scholars have greatly illuminated his creative methods in the Malay novels by tracing sources, Conrad,

⁷¹To Christopher Sandeman, Nov 21, 1922, Jean-Aubry, *ed. cit.*, II, 287, and such novels as *Typhoon*, *Almayer's Folly*, *Nostromo*, and *Heart of Darkness*.

⁷²To Garnett, May, 1917, *ed. cit.*, p. 250.

⁷³Author's Note, *Within the Tides*, p. vii, etc.

⁷⁴Gordon, *op. cit.*, *passim*, and Curle, *op. cit.*, *passim*.

⁷⁵To Mrs. Bontine, Dec. 4, 1898, Jean-Aubry, *ed. cit.*, I, 258; "Travel," 1923, *Last Essays* (New York, 1926), p. 86.

⁷⁶Author's Note, *Within the Tides*, p. viii.

unlike Hardy, refused to tell just what geographical phenomena he had drawn upon. Explicitness, he believed, would center interest upon his fidelity to an actual scene rather than upon the artistic soundness of the fictitious atmosphere in reference to the characters and action it enveloped.⁷⁷ In other words, observation was an author's means of obtaining information, but the final expression in a work of art was true or not true quite apart from the actual existence of a prototype. Its truth had only incidental connection with specific river mouths in Burma or harbors of South America. Thus Costaguana in *Nostramo* was not one South American country or a mere fusion of several South and Central American nations intended to describe those specific nations historically or geographically. It was a place of cultural conflict and political revolution significant for revealing personality. The details of tropical geography which built up its atmosphere were of consequence because they helped to make the action of the characters credible. Thus they contributed to the interpretation of universal rather than unique experience.

It was the characters that were the chief concern of a novelist. In their depiction Conrad's basic principles for separating superficial from fundamental qualities were of paramount importance. Though Conrad liked the simple, straightforward heroes of Marryat and Cooper and occasionally employed such a protagonist, himself, he was interested mainly in the revelation of man's identity in the universal order. This did not involve so intricate a psychological presentation as that of Dostoevski, but it meant illumination of emotion and instinct, since he believed life was virtually ruled by these. It was particularly in this that the author had to depend on autobiography—to descend within himself for the basis of his appeal. In portraying what was universal in his characters, Conrad felt that he was especially dependent on the "truth of my own sensations."⁷⁸ As with the milieu, the author could draw hints from one or many actual persons and then transform the facts until they became striking illustrations of "elementary convic-

⁷⁷"It is a strange fate that everything that I have, of set purpose, laboured to leave indefinite, suggestive, in the penumbra of initial inspiration, should have that light turned on to it and its insignificance (as compared with, I might say without megalomania, the ampleness of my conceptions) exposed for any fool to comment upon . . . Explicitness . . . is fatal to the glamour of all artistic work, robbing it of all suggestiveness, destroying all illusion." To Curle, April 24, 1922, Richard Curle, *Conrad to a Friend* (New York, 1928), pp. 112-13.

⁷⁸Author's Note, *Typhoon*, pp. vii-ix.

tions." The truth of a portrayal would lie in the insight of the artist, rather than in any objective approach to reality.

Conrad's view and method could lead, then, to great unevenness. The novelist might attempt feverishly to set forth a character and yet have no sound means of determining whether he was proceeding aright. Some Conradian characters, consequently, seem profound and others disconcertingly obscure and incomplete. The novelist himself came to realize that Verloc and his wife were badly drawn and that the girl in *Under Western Eyes* was wooden.⁷⁹ The difference between these characters and the crew of the *Narcissus* was not primarily one of craftsmanship. The author could sense within himself the personalities on the ship and so make them convincing and significant.

Perhaps more specifically rational in origin than some of his other views was Conrad's theory of the relation of the characters to the main purpose of a story. As explained by him, it was connected with his fusion of sources and his philosophy of life. Just as an author was free to draw facts from the lives and characters of several people to create a fictitious person—the character Heyst, for example, was suggested by an actual Swede, into whose mouth were put the words of other men⁸⁰—even so the characters which resulted from the synthesis were to be regarded as facts rather than truth.⁸¹ They were not to take control of a story, but were to exist as illustrations of such philosophic concerns as man's quest for identity or the essential solidarity of mankind. Since their creation sprang from impulse, they could not be wilfully coerced to do improbable things. On the other hand, they were not to be completely analyzed. Light could be cast suddenly and acutely on an inner recess of their personality and the rest left in mystery.

The problem of depicting the characters in reference to the theme, of portraying them as they were true to his own sensations, led Conrad to make one of his most important contributions—an essentially new conception of narrative method. In discussing *Romance*, Ford described the new method, which he asserted he and Conrad first worked out

⁷⁹To Garnett, Oct. 1, 1907, *ed. cit.*, p. 204; Oct. 20, 1911, p. 234.

⁸⁰Author's Note, 1920, *Victory*, p. xi.

⁸¹"In a book you should love the idea and be scrupulously faithful to your conception of life. There lies the honour of the writer, not in the fidelity to his personages. You must never allow them to decoy you out of yourself." To Galsworthy, Nov. 11, 1901, Jean-Aubry, *ed. cit.*, I, 301.

together, though, in point of fact, before the collaboration began in 1898, Conrad had already made good use of it:

This is a novel exactly on the formula that Conrad and the writer evolved. For it became very early evident to us that what was the matter with the Novel, and the British novel in particular, was that it went straight forward, whereas in your gradual making acquaintanceship with your fellows you never do go straight forward. You meet an English gentleman at your golf club. He is beefy, full of health, the moral of the boy from an English Public School of the finest type. You discover, gradually, that he is hopelessly neurasthenic, dishonest in matters of small change, but unexpectedly self sacrificing, a dreadful liar, but a most painfully careful student of lepidoptera and, finally . . . a bigamist. . . . To get such a man in fiction you could not begin at his beginning and work his life chronologically to the end. You must get him in with a strong impression, and then work backwards and forwards over his past . . . That theory at least we gradually evolved.²⁰

This was the same narrative manner by which, in the autobiographic *Personal Record*, association of impressions replaced chronology. Conrad once used the phrase "work from conviction to conviction" to explain what one ought to do.²¹ When a reviewer suggested that in *Chance* the incidents could have been related briefly in sequence, Conrad maintained that he had to tell the story in an indirect manner rather than in objective chronological form:

. . . in the infinitely minute stories about men and women it is my lot on earth to narrate I am not capable of such detachment.²²

Sometimes in short tales Conrad did use conventional plot structure and direct narration. Again, as in *Typhoon*, he altered the telling only enough to moderate a reader's interest in the suspense created by the hurricane itself—the second and worse phase is dismissed in half a line—and to center it upon the effect of the experience on the characters, mainly after the principal action was completed. In *Nostromo*, with some artistic uncertainty, to be sure, he went forward and backward and shifted the center of attention from one group to another, with the mine over-shadowing all and unexpectedly changing their lives. In *Lord Jim* he started in the middle and seldom narrated as many as two major incidents in the order in which they occurred, though that order becomes, ultimately, very clear. His aim in so beginning the novel he explained two decades later in words the spirit of which

²⁰Ford, *op. cit.*, pp. 136-37.

²¹To Garnett, Oct. 11, 1897, *ed. cit.*, p. 111.

²²Author's Note, *Chance*, p. x.

could apply to several other novels, including *The Nigger of the "Narcissus,"* *Victory*, and *The Rescue*, as well as those just mentioned:

... the pilgrim ship episode was a good starting-point for a free and wandering tale; ... it was an event, too, which could conceivably colour the whole "sentiment of existence" in a simple and sensitive character.⁸²

The story itself had meaning only as hints from Marlowe revealed what the coloring might have been. An author could not write a straightforward, omniscient account about his fellowman's most profound motives; life was far too dark and inscrutable.⁸³ But through Marlowe, picking up threads, piecing together hearsay, and reaching back to associate incidents in Jim's life which were years apart and to bring in bits from the lives of others for perspective, the tale could make Jim's possible motives and sensations articulate and coherent. In an objective, dramatic story the failures of Jim would have been of little consequence, his final resignation sheer melodrama. They had to be talked about and pondered, not dogmatically, but inquiringly.

In *The Nigger of the "Narcissus,"* likewise, the form of narration was untraditional. Almost nothing reached completion in the story, though many things were started, and the character of the Nigger was left uncertain. In justifying the novel, which he considered one of his best, Conrad wrote to Garnett:

As to lack of incident, well—it's life The incomplete joy, the incomplete sorrow, the incomplete rascality or heroism—the incomplete suffering Events crowd and push and nothing happens. You know what I mean The opportunities do not last long enough.⁸⁴

Yet, in that incomplete or "passing" phase, Conrad felt that he had illumined the "mystery surrounding our lives"; that, in presenting "an unrestful episode in the obscure lives of a few individuals out of all the disregarded multitude of the bewildered, the simple and the voiceless," he had appealed to man's "invincible conviction of solidarity."⁸⁵

My concern here has been, not to survey Conrad's practice in all his works, but only to determine what he had in mind when he wrote his critical comments and what he believed to be his chief innovations

⁸²Author's Note, 1917, *Lord Jim*, p. viii. Cf. Gordan, *op cit*, for Conrad's modification of sources.

⁸³"... a man is much more like the sea whose movements are too complicated to explain, and whose depth may bring up God only knows what at any moment."

⁸⁴"The Warrior's Soul," *Tales of Hearsay*, p. 18.

⁸⁵To Garnett, Nov. 29, 1896, *ed. cit.*, p. 80.

⁸⁶Preface, *The Nigger of the "Narcissus,"* p. xii.

in telling a story. In thinking over his creative writing and over the prefaces which he had recently completed, he tried, near the end of his life, to interpret his own narrative art. A writer had suggested that both *A Personal Record* and the fiction "aimed at a personal communication, without any thought for other effects." Conrad agreed with the first part of this interpretation, but he continued:

As a matter of fact, the thought for effects is there all the same (often at the cost of mere directness of narrative) and can be detected in my unconventional grouping and perspective, which are purely temperamental and wherein almost all my "art" consists. That, I suspect, has been the difficulty the critics felt in classifying it as romantic or realistic. Whereas, as a matter of fact, it is fluid, depending on grouping (sequence) which shifts, and on the changing lights giving varied effects of perspective.

It is in those matters gradually, but never completely, mastered that the history of my books really consists.⁸⁸

Even as the test of the validity of the materials was personal and "temperamental," so, too, then, in Conrad's opinion, was the choice of the way to present them. Yet he wrote of shaping the narration with a "thought for effects" just as he maintained that the characters must be held in restraint. Inasmuch as he philosophized about literary art and even attempted to instruct others in it, he obviously realized that there was much in it that was objective and that could be reasoned upon. What he seems to have meant was that the precise form of narration had to grow out of the way in which the author sensed the characters and situations and could not be determined rationally in advance.

A recapitulation of what Conrad said about the effect he sought—"to make you see"—the function of the characters, and finally the value of plasticity in narration reveals their coherent relationship. The plasticity, involving indirectness of presentation, was necessary to enable the author to concentrate on the effect of events on characters rather than on incidents themselves.⁸⁹ Incident, then, was to be viewed psychologically. The characters, in turn, were to be subordinated to the revelation of some conviction, as of solidarity or of man's place in the universal order. Thus, although Conrad was interested in psychology rather than objective narration, yet instead of making a systematic,

⁸⁸To Curle, July 14, 1923, *Conrad to a Friend*, p. 149.

⁸⁹"As in most of my writings I insist not on the events but on their effect upon the persons in the tale." *Typhoon*, p. ix, in reference to *Falk*.

circumstantial analysis of a character, he would give only enough clues to identify the character in the social and cosmic world.

The task of artistic composition was not yet mastered with the choice of a situation, the characters, and a flexible narrative plan. There remained for Conrad the problem of choosing the right word and the shaping of each sentence, since he was acutely aware that on the nuance of a word or phrase might depend the precise tone of a scene or the subtle individualization of a character. It is not possible to credit him with any special originality in his views upon the importance of phrasing, too many masters of style, including Flaubert, whom he revered as a master,²¹ had preceded him. Since his novels, however, underwent extensive revision and it has been possible to trace passages through as many as seven or eight stages, they permit what is unusual in English prose fiction, the watching of a novelist at his work; and the critical views help illuminate the revisions.

Fiction, Conrad believed, must attempt to achieve through the power of words the effects especially associated with the other arts:

It must strenuously aspire to the plasticity of sculpture, to the colour of painting, and to the magic suggestiveness of music—which is the art of arts—it is only through an unremitting never-discouraged care for the shape and ring of sentences that an approach can be made to plasticity, to colour, and that the light of magic suggestiveness may be brought to play for an evanescent instant over the commonplace surface of words of the old, old words, worn thin, defaced by ages of careless usage.²²

To praise such diverse novelists as Cooper, Crane, and Proust, Conrad did not require of them any particular style; but there had to be integrity of purpose and artistic restraint and no evidence of carelessness or insincerity. A letter he wrote to Sir Hugh Clifford in 1899 suggests how his standard of artistic integrity applied to minute details of composition. From Clifford's description of his hero, fast in the grip of a rock, Conrad quoted, "When the whole horror of his position forced itself with an agony of realization upon his frightened mind, Pa' Tûa for a space lost his reason." From this he cut out *with an agony of realisation* and *frightened*. The latter or any other word there, he pointed out, was "inadequate."—"The imagination of the reader should be left free to arouse his feeling." The revision, he held, was truth "because it is a *picture of a mental state*." He continued:

²¹Ford, *op cit*, p. 208.

²²Preface, *The Nigger of the "Narcissus,"* p. xiii

"He screamed aloud, and the hollow of the rocks took up his cries." . . . It is magnificent! . . . But "*and hurled them back to him mockingly*" is nothing at all . . . it is the sort of thing I write twenty times a day and (with the fear of overtaking fate behind me) spend half my nights in taking out of my work—upon which depends the daily bread of the house. . . . And I can sell all I write—as much as I can write!"¹⁰

In the light of Conrad's statements on how an author achieves truth, the criticism may be taken to imply that Clifford had not "descended within himself," that, instead of being "true to his own sensations," he had tried to describe what he had not felt. Consequently, in using the objectionable words, he had done more than weaken the scene; he had falsified it.

Writing to Mrs. E. L. Sanderson eleven years later, Conrad again protested against diction which resulted from careless and untrue imagining of a situation:

In writing and especially in descriptive writing one must guard oneself against the "*à peu pres*,"—the horrid danger of the "near enough." . . . In descriptive writing one must either evoke images or make statements. The words *strange presence* are neither image nor statement. *Power*, instead of *presence*, is I think all right. *Compelling* I don't like very much. In view of what follows, *fatal* might do."¹¹

A writer was to consider both the accuracy of the words for describing a situation and their effect on the reader. An objection Conrad wrote to Galsworthy on a line in *The Eldest Son* illustrates how inextricably the general conception of a scene and the details of phrasing were interrelated, how easily an infelicity in phrasing could ruin the intended effect:

When Sir William feels hot (while his wife sits shivering) you make him speak to *her*. It's too pointed. Some idiot in the audience is sure to laugh at it . . . Sir William might just put a handkerchief to his forehead and mutter "they make infernal fires here" or something of the sort . . . no opening for an inept guffaw will be given."¹²

Of Conrad's numerous depreciations of his own style, perhaps the severest concerns *The Secret Agent*, in which he had tried to convey an undertone of irony:

As to the beastly trick of style, I have fallen into it through worry and hurry.

¹⁰To Clifford, Oct. 9, 1899, Jean-Aubry, ed. cit., I, 280. The reference is to Clifford's *In a Corner of Asia*, 261. Conrad calls words "symbols of life." *Ibid.*

¹¹To Mrs. Sanderson, Sept., 1910, Jean-Aubry, ed. cit., II, 118.

¹²To Galsworthy, early 1909, Jean-Aubry, ed. cit., II, 95. The passage in Act III now reads, "[He suddenly takes out his handkerchief, and puts it to his forehead] Infernal fires they make up here!"

I abominate it myself. It isn't even French really. It is Zola jargon simply.⁸⁷ Sometimes he had to turn to Garnett for help in revision.⁸⁸ His eager acceptance of suggestions about lines in novels which he had already several times revised showed that he recognized the value of a detached, objective criticism of a purely temperamental creation. In his letters and prefaces Conrad told of the extraordinary emotional strain he underwent in composing and revising. A remark to Wells is typical:

. . . for me, writing—the only possible writing—is just simply the conversion of nervous force into phrases when the nervous force is exhausted the phrases don't come—and no tension of will can help.⁸⁹

In his fictional biography, Ford asserts that Conrad believed in a mysterious, virtually mystic quality of an apposite phrase.⁹⁰ Ford, who seems really to have regarded himself as the "best stylist in England," tells of conversations in which the two tried to find the one word or phrase that alone had the magic connotation to transform an acute perception into art. They would sometimes resort to French and then translate into English. There was one phrase which to Ford symbolized his and Conrad's art. What it meant to Conrad himself is suggested in a letter he wrote to his one-time collaborator during the second year of the First World War:

Yes! *mon cher!* our world of 15 years ago is gone to pieces: what will come in its place, God knows, but I imagine doesn't care.

Still what I always said was the only immortal line in *Romance*: "Excellency, a few goats," survives,—esoteric, symbolic, profound and comic—it survives.⁹¹ It was ultimately by choice of the right word, feverishly sought and yet inspired, that an author was able to shape the truth artistically in his own mind and to communicate to others an artistic insight into the human and natural spectacle:

To . . . compel men entranced by the sight of distant goals to glance for a moment at the surrounding vision of form and colour, of sunshine and shadows.⁹²

⁸⁷To Galsworthy, Sept. 12, 1906, Jean-Aubry, *ed. cit.*, II, 37. Conrad's only concession to Mrs. Grundy seems to have been in *The Nigger of the "Narcissus"*, where at Heinemann's suggestion he "struck 3 or 4 bloody's out. I am sure there is a couple left yet but, damn it, I am not going to hunt 'em up." To Garnett, Oct. 11, 1897, *ed. cit.*, p. 113.

⁸⁸The extent and nature of Garnett's suggestions for revisions have not been determined; most of his marginal notations are on sheets now lost. The letters reveal, however, that they were numerous, especially on *The Rescue*.

⁸⁹To Wells, Nov. 30, 1903, Jean-Aubry, *ed. cit.*, I, 321.

⁹⁰Cf. also "A Familiar Preface," *A Personal Record*, p. xiv: "Give me the right word and the right accent and I will move the world."

⁹¹To Ford, Aug. 30, 1915, *ed. cit.*, II, 169. Cf. *Romance*, p. 464.

⁹²Preface, *The Nigger of the "Narcissus"*, p. xvi.

THE RISE OF THE WISCONSIN TIMBER BARONIES

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The rapid disposition of the public domain and the methods by which individuals and corporations acquired vast tracts of invaluable pine lands is an appalling phase of the history of lumbering in all parts of the country where forests once constituted the major resource. Unprecedented graft and exploitation of public resources during the period of transfer of timber lands from public to private ownership were the rule rather than the exception in Wisconsin. The code of conduct appears to have been "to beat the other fellow before he beats you, and it was followed with a licentiousness born of greed and avarice."¹ Lumber companies and railroads reaped the greatest harvest, while the public silently acquiesced, too absorbed with personal problems to be aware of the consequences.

By 1848 most of the Indian titles had been extinguished from the public lands in Wisconsin, and the lumbermen never experienced much of a menace from this source. Surveys of the greater part of the lands were completed by 1868, the records filed at Madison, and the land offices maintained at Menasha, Stevens Point, La Crosse, Bayfield, Eau Claire, and Falls of St. Croix.² Occupants of the unsurveyed public domain before the lands were put up for sale were squatters, but public opinion did not stigmatize them as unlawful intruders, inasmuch as it was a common practice

Before the land was purchased by a timber operator, it was investigated by "cruisers," or "land-lookers," who generally traveled in parties of two or three and whose duty was to go into the wilderness and make a close estimate of the amount of timber on each sub-division of a section, and then determine whether it would pay to enter, or purchase, the land. They might be employed by a mill-owner to estimate timber already purchased; or they might go on their own account and sell their "minutes" (statements of

¹John E. Nelligan, "Life of a Lumberman", *Wisconsin Magazine of History*, XIII (Sept., 1929), 279-80

²*Annual Report of the Commissioner of the General Land Office* (Washington: Government Printing Office), 1868, p. 12. Hereinafter cited as *G.L.O. Report*.

the quantity and quality of pine on a given tract) to some speculator who entered the land and gave them a part interest. Because of the nature and importance of his functions, a cruiser had to be an expert timberman.³

When lumber companies entered government land, they often took advantage of these cruisers, who generally were poor men with no money with which to enter the land themselves. They would go to a company, give a description of the land, and ask for a three-quarters interest when it was entered. The company officials would offer some excuse, such as that the timber was too far up the river. Afterwards, these cut-throats would enter the tract at the land office by telegram and forward the money by express.⁴

A brief account of the various methods by which lands could be legally acquired and of the fraudulent practices resorted to in order to evade the letter of the land laws will give the background for an understanding of how the great timber baronies came into being. Whenever state or federal lands were surveyed and put up for sale, they could be purchased at public auction by the highest bidder. Lumbermen, however, seldom acquired lands in this manner, as it was not "convenient" to be at the sale. More commonly practiced was "private entry" or "location," the purchase being made with cash, military bounty warrants, agricultural college scrip, or the exercise of the right of pre-emption.⁵ In each instance a written application had to be made to the land register in the district in which the land was located, and a description of the desired tract had to be given. Every purchaser was required to pay certain fees, theoretically covering the cost of the title deed, registration, and incidental expenses of the transaction.

Two classes of land were obtainable: that which could be purchased at the minimum price of \$1 25 an acre and that classified as double the minimum at \$2 50 an acre, the latter class consisting of the lands granted to railroads and internal improvement com-

³*Ibid.*, pp. 44-47; Albert H. Sanford (ed.), "The Lumber Industry," *La Crosse County Historical Sketches* (La Crosse, Wis.: La Crosse County Historical Society, 1937), III, 7-10. Cruisers generally considered that a forty-acre tract must have 140,000 feet of timber to make it desirable. Such factors as height, size, soundness, nearness to streams, character of ground, and probable expense of running the logs to market were considered in estimating the value

⁴Nelligan, *op. cit.*, pp. 283-84.

⁵*G.L.O. Report*, 1865, p. 26.

panies. According to the General Prospective Pre-emption Law of 1841, heads of families, widows, or single men over twenty-one years of age who were United States citizens or had declared their intentions so to be could pre-empt 160 acres of land. This meant that such individuals, because of actual settlement and improvement of certain land, had the prior right to file claim within thirty days after notice that the tract was "offered" land. Pre-emptors had to make proof of actual residence and improvements thereupon and pay the minimum price in cash, in bounty warrants, or (after the passing of the Morrill Act in 1862) in agricultural college scrip.⁶

If the land had been surveyed but not offered at public sale, the claimant had to file a declaratory statement within three months after date of settlement and "prove," as well as pay, within thirty-three months. Such a plan did little or nothing to alleviate the old evils that had existed under the credit system. Joint entry could be made if two or more "settlers" had moved upon unsurveyed lands and, after the survey was made, were found to be residing upon and claiming the same land, and separate entries, or "floats," for the residue of their claims over the smallest subdivision of a section. The land office records over a period of forty years after 1850 reveal that a high percentage of lands in Wisconsin were purchased under the Pre-emption Law.⁷

Even after the passing of the Homestead Act of 1862, the timber operators had a convenient method of obtaining land almost free without having to make permanent settlement or to add improvements. The Commutation Clause, which gave the right to pay the minimum or graduated price for the allotted 160 acres after six months of residence instead of receiving the land free after five years of settlement, supplied the loophole sought.⁸ The Pre-emption Law of 1841 had provided that an "actual settler" had a prior claim to land on which he had "settled" and first right to buy the land when it was offered for sale. The Homestead Act of 1862 was a further liberalization of land policy, providing 160 acres of land free to qualified settlers after five years of settlement and improve-

⁶*Ibid.*, 1875, pp. 127-28, gives a summary of the various methods taken from the *Revised Statutes*, Sec. 2274.

⁷*Ibid.*, 1850-90.

⁸Thomas Donaldson, *The Public Domain* (Washington, 1884), pp. 347-50. See also *G.L.O. Report*, 1875, p. 129.

ment. Timber operators, however, would not want to wait five years to get a title to land; and they would not want to go to the expense of maintaining "dummy settlers" on the land for that length of time. Therefore the Commutation Clause of the Act, which merely substituted provisions of the Pre-emption Act of 1841, played into their hands. Because only proof of settlement and improvement of the land had to be made, not proof of permanence, the Commutation Clause of the Homestead Act was extensively used by timbermen to gain title to public lands through the use of dummy entrymen, false swearing, and often the connivance of local land officers. By 1866 Wisconsin, with an original area of 53,924 square miles, or 34,511,360 acres, had sold 9,717,660 acres of the public domain; 10,016,700 acres remained unsold; and the remainder had been donated or granted to schools, agricultural colleges, the university, railroads, and internal improvement projects.⁹

In the vicinity of Duluth and Superior, it was a common practice for persons desiring to "commute" their entry to take an ordinary dry-goods box and make it resemble a small house with doors, windows, and a shingle roof. This box would be 14 x 16 inches, or larger, and would be taken by the entryman to his claim. On the date of "commutation" proof, he appeared at the local land office, swore that he had upon his claim "a good board house 14 x 16, with a shingle roof, doors, windows, etc."¹⁰ Taken at its face value, the proof appeared excellent and was readily accepted by local land officers. The head of a large lumber company in the Northwest stated that he, with his associates, had acquired thousands of acres of pine lands under the Pre-emption Act simply by filing the names found in the St. Paul and Chicago directories. He had a standing agreement with local officers whereby they were to permit such entries for a consideration of twenty-five dollars each.¹¹

⁹John Ise, *The United States Forest Policy* (New Haven: Yale University Press, 1920), p. 48. Cf. Paul W. Gates, "The Homestead Law in an Incongruous Land System," *American Historical Review*, XLI (July, 1936), 652-56, also the *G.L.O. Reports* for the period.

¹⁰Ise, *op. cit.*, p. 80. This type of practice, although to be suspected, is the most difficult to confirm with documentary evidence. The writer had the good fortune to interview personally John Bardon, an old pioneer and former employee of the Weyerhaeuser Lumber Company at Lake Nebagamon, Wisconsin, in July, 1938. Mr. Bardon confirmed the assertion that these were typical practices.

¹¹Ise, *op. cit.*, p. 80; Donaldson, *op. cit.*, pp. 682, 1220

Another method used by lumber companies was to put lumber-jacks on the land, pay them thirty dollars a month and board, keep them there for five years, and then have the "jacks" deed over the lands. Each one took a quarter section; and the improvements required of the homesteaders by the law consisted of the crudest sort of shacks, with two holes made in the walls for window openings and two or three whiskey bottles stuck in each opening for glass. When a young fellow under twenty-one wished to make a claim, the representative of the company would take the minor to the land office, mark "21" on the floor with white chalk, and have the youngster stand over the chalk mark and swear that he was over "21."¹²

Not only was the "little man" taken advantage of, but often wealthy lumbermen went against each other. Such an incident occurred in 1875, when several thousand acres of the Chicago and Northwestern Railroad land were offered for sale to the highest bidder. Keen competition created an atmosphere of intense excitement. Two rich rivals, one from Oshkosh and one from Oconto, both wanted part of the tract, which was advantageously located for driving the logs to either town. The Oshkosh man called the Oconto man and proposed a scheme by which, to avoid competitive bidding, he would bid in the land desired by the latter and turn over the tract at the purchase price after the sale. This was readily agreed to, but when the disillusioned man went to complete the deal, the millionaire told him that he had changed his mind and was going to keep all the land for himself.¹³

Besides the lumber barons, there were also timber operators who, with no pretense at settlement or purchase of the land, erected mills on the public domain and sawed the timber. They generally were most active where timber- and log-stealing was most lucrative, which in the eighties meant Wisconsin, the scene of extensive operations by these cunning timber rustlers.¹⁴ These fraudulent methods, of course, required the wholehearted connivance of the Government land agents. As a rule, coöperation was easily obtained if the fruits of the graft were shared with them. Unfortunately for them, however, there were some agents whose integrity was ex-

¹²Nelligan, *op. cit.*, p. 280.

¹³*Ibid.*, pp. 283-84.

¹⁴*Ide, op. cit.*, p. 81.

ceedingly annoying. When an honest agent made impossible the perfect consummation of the grafters' plans, every device (mostly foul) was resorted to in order to get rid of him. An example is the low means employed by some land sharks in Ashland, Wisconsin, who were bent upon obtaining several million feet of valuable pine on an Indian reservation near there, to eliminate an agent whose incorruptible honesty was obnoxious and unprofitable to them. After he had refused to make concessions to them, the plotters imported a "vamp" from Chicago and cleverly involved him in an episode which compromised him out of town.¹⁶ Profits were always a great temptation to the poorly paid land officers, who found it difficult and impoverishing to remain honest while living in an environment of loose morals, questionable deals, and rapidly accumulated wealth.

Frauds would have been more difficult to perpetrate but for a benevolent government whose public land policies always had been characterized by over-indulgence on its part and much corruption, fraud, and defaulting of obligations on the part of "settlers," speculators, and corporative enterprises. The fact was ignored that most of the lands entered in the timber regions of Wisconsin under the Pre-emption and Homestead Laws were unfit for agriculture, and agents winked at false swearings and proofs that the lands were taken for improvement purposes.¹⁶ Often not a single pre-emptor was on his claim after making final proof at the land office.

One timber operator employed an agent to go to the Duluth district and hire men to pre-empt lands for his benefit. Money was placed in a bank to pay the expenses; an agent selected the lands and hired men, offering thirty-one \$125 each. These puppets of the speculating capitalist were taken to the lands, where they remained three days and then left, after piling up a few logs and covering them with brush for their improvements. They made their proofs, were paid off, and assigned the lands to the hidden engrosser, a lumber company. In this particular instance nearly five thousand acres of valuable pine timber land were secured.¹⁷

¹⁶Nelligan, *op. cit.*, p. 281.

¹⁷G.L.O. Report, 1886, pp. 77 ff

¹⁸*Ibid.*, pp 80-97.

Proprietors of extensive pine lands adopted the policy of selling to lumbermen the right of cutting the timber, for which privilege was paid a stipulated price called "stumpage"; and afterwards the cut-over lands were sold to prospective farmers. Stumpage prices were regulated by the market value of lumber and the supply of timber. Thus, in 1860, stumpage was worth from two to five dollars per thousand feet on lands in northern Wisconsin.¹⁸ Mr. James T. Barber, president of the Northwestern Lumber Company, of Wisconsin, spoke on this subject before the American Forest Congress in 1905, citing the following experience of Mr. Cornell with white pine lands:

In 1865, Ezra Cornell, founder of the University named after him, purchased with scrip and for the University, 500,000 acres of pine lands in Wisconsin. The scrip cost him 60 cents per acre, which, at the very low estimates then customary, made the pine stumpage cost from 6 to 10 cents per thousand feet. The 500,000 acres were practically all dispensed [disposed?] of at a clear profit, after paying all expenses, taxes, etc., of \$5,500,000, and some of the last sales of the pine stumpage were at from \$10 to \$12 per M [thousand feet]. In 1905 the best white pine stumpage had risen to from \$15 to \$18 per M.¹⁹

With the increasing demand for the hitherto-ignored hemlock for lumber, pulpwood, and tanning bark, its stumpage value increased to four dollars by 1906. Cedar and tamarack stumpage values also rose, but hardwoods remained low. It was characteristic of the history of timber, not only in Wisconsin, but all over the country, for stumpage fees and values to rise steadily, irrespective of the ups and downs of the lumber market. Accordingly, the policy of lumber companies to slash their timber lands by taking only the best logs and destroying the young growing trees seems short-sighted. Often, especially when the market for lumber was low, they butchered their timber for no discernible purpose at all.²⁰

Probably the greatest lumber thieving was done by trespassers. In 1894, Representative Wells gave the following interesting, although somewhat exaggerated, account of early conditions in the Lake States:

... Men in the early days of Wisconsin and Michigan, so long as timber lasted, would purchase 40 acres and "capture"—they did not call it "stealing"—

¹⁸James S. Ritchie, *Wisconsin and Its Resources* (Philadelphia: Charles Desilver, 1860), pp. 67-68.

¹⁹*First Annual Report of the State Forester of Wisconsin*, 1906, p. 53.

²⁰*Ibid.*

timber on 320 or 640 acres. It is a known fact that . . . the lumbermen, the pine-land thieves, have grown rich and purchased seats in this house—yes, and wandered over in the other, and dangerously near some of them have wandered to the Interior Department, and some of them, it is said, wandered even in there.²¹

These so-called "rubber" or "long" forties have been described by an old pioneer in the Black River region:

. . . . When it was known that the standing pine was considered worth \$500 to \$2,000 per forty, it is not surprising that men were lured by the prospects of sudden wealth, if engaged in that pursuit. Some parties feigned ignorance of the survey lines, which could be obliterated by cutting the line trees and witness trees, thereby procuring what was called a "long" forty, cutting much timber that didn't belong to them—and acquiring valuable stumpage that cost them nothing.²²

This trespassing or stripping adjacent lands of their timber by irresponsible loggers, adept with "long-handled" axes, exposed the public domain to one of its greatest dangers. It became a grave and difficult problem with which to deal for the land commissions. Some of these timber buccaneers were encouraged in their free-booting by dishonest mill-owners, who thereby obtained cheaper logs. The most common practice was to purchase from the state its choicest pine lands, paying only a small installment on the purchase price, in accordance with the loose requirements of the day. Then the looters proceeded to strip the lands quickly of all their merchantable timber and after denuding allowed the lands to revert to the state, without ever having paid any taxes or even the minimum purchase price.²³

The reports of the Commissioner of School and University Lands of Wisconsin²⁴ reveal to some extent the losses suffered by

²¹*Congressional Record*, Dec 7, 1894, p. 111, quoted by Isaac, *op cit.*, p. 81. The outstanding case was that of Isaac Stephenson, the millionaire lumberman of Peshtigo, Wisconsin, who a few years after this speech was accused of buying his way into the "Millionaires' Club," the U. S. Senate. See *Senate Document 753*, 60th Congress, 2d Session.

²²*La Crosse Tribune and Leader Press*, Feb. 20, 1938.

²³An examination of any of the pinery newspapers, such as the *Chippewa (Falls) Herald* or the *Black River Falls Banner*, from 1865-1900 reveals the great extent to which reversions took place. See also *G.L.O. Report*, 1875, p. 10.

²⁴The school funds were derived from the sale of lands donated to the state by the Federal Government for educational purposes—every 16th section, 500,000 acres by the Act of 1841, one-fourth of the swamp lands by the Act of 1850, from fines for breaches of penal laws, and 5% of the net proceeds of public lands entitled to Wisconsin on its admission into the Union. See "Commissioner of School and University Lands Report," *Wisconsin Messages and Documents*, 1864, p. 394.

the state through the operations of timber thieves. In 1860 the Commissioner reported:

Of all the causes which operated to the depletion of the trust funds of the State, it is believed none has worked greater loss than 'skinning' the pine and other timbered lands of the northern portion of the State. Remoteness from settlements has screened lumbering camps who have operated on the best pine lands of the State without a shadow of authority. In most cases irresponsible jobbers have been behind the depredations.²⁵

Again in 1865 the Commissioner reported how quietly, but actively, trespassers were stripping off timber from the public lands, sometimes so extensively "as to cover the rivers with stolen logs, and to grow rich upon their illgotten plunder." Equally guilty were those who purchased the stolen logs, thus supporting and encouraging this piracy. When even important corporations and prominent men engaged in the traffic, public sentiment became demoralized; and efforts for the detection and punishment of the criminals were thwarted, even resented as "unwarrantable interference with private rights." Public lands were regarded as legitimate prey for all to plunder; and honest lumbermen, as a consequence, were unable to compete with the rogues who paid merely for the cost of cutting logs.²⁶

As swaths, legal and illegal, cut by Wisconsin lumbermen penetrated deeper and deeper into the vanishing forests, it became increasingly difficult to find timber lands to obtain by private entry. In 1890, however, special legislation and a proclamation by President Harrison opened several thousand acres of reserved pine lands near Wausau to homestead entry. Trouble was feared because of the scramble anticipated for securing a slice of the alleged great prize and because of ill feeling resulting from rumors that parties were organizing to come to Wausau and run things to suit themselves.²⁷ A week before the land office was to open, hundreds of strangers filled the town; and the police force was reenforced to put down any disturbance. Three days before the time appointed, men loaded with blankets, eatables, and drinkables began congre-

²⁵*Ibid.*, 1860, p. 61. Especially plundered were the lands held by the state in trust for the St. Croix and Lake Superior R. R. and the Sturgeon Bay Ship Canal Company, as they secured even less protection than school and university lands.

²⁶*Ibid.*, 1865, p. 343.

²⁷*The Central Wisconsin*, Wausau, Dec. 13, 1890.

gating in the courthouse yard before the receiver's window, doggedly holding their places in the line. Each arriving train brought fresh recruits, and many came into town on foot and by team. During the excitement a barrier was erected to safeguard the land office, and the Wausau Light Guards were called out under arms to assist in preserving the peace and dignity of the city. Only the threat of a bayonet charge prevented a riot.²⁸

When the window opened at the appointed hour, the crowd cheered and sprang into action. The filing continued for three days, persistent men holding their positions in the line by sleeping in chairs and on benches. When the window closed, only a small percentage of the thousands of homesteaders had actually made entries; and only fifty or sixty good claims of pine lands were in the whole lot.²⁹ While hundreds of "pine-mad" land-seekers were carrying on this campaign for sudden wealth, others were pursuing a different course to attain the same end.

Suddenly on the clear, frosty air there sounded the ring of an ax. Newly-lighted fires blazed up, disclosing the presence of American citizens who had acted on the theory that possession is nine points of the law. In the initial hours of that fateful day, they effected improvements intended to establish possession. Hundreds of confident individuals who had stood patiently in the line before the land office at Wausau subsequently found their claims had been "squatted" on by adverse claimants who had discovered a catch in Mr. McCord's bill and turned the discovery to advantage. In the end the doctrine of squatters' rights prevailed.³⁰

Thus ended the last great timber rush in this section. Charges became rife that many of the squatters were agents of big lumbermen and that the cryptic language of the law had been artfully contrived for the purpose of getting the better of home-seekers as a class and making a loop-hole for shrewd gentlemen prosperously engaged in lumbering. Although during the scramble in the dark many squatters made improvements on identical quarter sections, so that hot contests and costly litigation resulted, and despite the fact that the situation furnished an exciting topic for newspapers and everybody talked about it, absolutely nothing was done about it.

²⁸*Ibid.*, Dec. 20, 1890.

²⁹*Ibid.*, Dec. 27, 1890.

³⁰John G. Gregory (ed.), *West Central Wisconsin A History* (4 vols.) (Indianapolis: S. J. Clarke, 1933), I, 139

Using all these tactics and others that may never be known, large timber operators razed the valleys of the Wisconsin, the Fox, the Black, the Wolf, the Chippewa, and other important Wisconsin lumbering streams until the frontier at last reached the last of the great pineries—the Lake Superior region. Until the building of railroads to Superior in the eighties, these forests were largely inaccessible for “development.” Frederick Weyerhaeuser, who was the master-mind of the Mississippi River Logging Company²¹ and had gained control of the Chippewa pineries, displayed his usual keen foresight when he obtained large tracts of land near Lake Nebagamon, Wisconsin. Here he became the dominating figure in lumbering in the country, succeeded by his son. With the aid of land-grant railroads and portable gas-run sawmills, only a few years were required to plunder the northernmost forests. After a brief flush period the timber barons had to migrate to Minnesota and thence to the Pacific coast if they wished to continue their profitable devastation.²²

In all of the regions mentioned above, lumbering, in flush times, was so profitable that a shrewd manager and hard driver could reasonably expect to amass a fortune in a few years. For one thing, the market value of the products was out of all proportions to the investment. If special skill or unusual cleverness was applied to the problem of obtaining a steady flow of raw materials from the pineries and if dangerous competitors were frozen out or absorbed, enormous earnings could be contemplated. There were, of course, many risks to be assumed, such as governmental seizure of timber which trespassing loggers had stolen from the public lands; the ever-present menace of forest fires and burning of sawmills; and the loss of logs in the spring freshets, or through water-logging and sinking. It became characteristic of lumbering towns in areas of receding timber baronies and steadily increasing costs of log-running by steam, along with the progress of railroad transporta-

²¹Matthew Norton, *The Mississippi River Logging Company* (n.d.).

²²Some information about the Weyerhaeuser interests was gleaned from the *John Bardon Papers*, MSS, in private hands, and also from interviews with this interesting and apparently reliable old pioneer at Lake Nebagamon, Wisconsin. The writer has spent ten summers on the old Weyerhaeuser estate here, visited the old mill sites, viewed the results of organized plundering, and has become quite permeated with the legends, color, traditions, and practices of a major lumbering region.

tion and the placing of mills closer to the source of supply, for the crude manufacturer of the early period to be replaced by finer and ever finer processes and the substitution of skilled labor in machine or wagon factories for the common labor of sawmills. Cities founded by timber barons which had no refined industries with which to replace or supplement the sawmills gradually decayed, or virtually disappeared and became ghost towns.⁸³

In view of the rapid decline of lumbering in Wisconsin, one might well ask why something wasn't done to apprehend those responsible for the spoliation of its premier resource. For many years there was little effort to discourage dishonest practices which hastened the end of the timber frontier. Private landholders employed experienced timbermen to protect their interests, but prior to 1860 the state left the difficult task of guarding its vast and remote forests to county sheriffs, constables, and justices of the peace. In 1860 the legislature authorized the maintenance of four forest rangers, called clerks, in the northern pineries during the logging season.⁸⁴ Penalties were never sufficiently severe to discourage trespassers, for the culprits detected were given the opportunity to escape prosecution by merely purchasing the depredated land and paying only an additional twenty-five per cent as a penalty. The number of rangers was inadequate to protect the vast areas, and the cost of administration and collecting fines about balanced the proceeds taken from penalties.⁸⁵ The situation became so serious in the St. Croix area as to bring forth a reprimand from the Governor in 1876 against such an inept policy.⁸⁶ Prevention of depredations, not collection of stumpage from trespassers, was the true solution to the problem, he asserted.

Not until the beginning of the present century were the penalties made severe enough to discourage the purchase of stolen

⁸³A good example is Lake Nebagamon, Wisconsin, which was a thriving boom town of over 2,000 population in 1900, when the Weverhauser Lumbering Company was operating. Now it is practically a deserted village.

⁸⁴*Wisconsin General Laws*, 1860, Chap. 277.

⁸⁵For an idea of the vast amount of state pine lands plundered and the number of stolen logs, shingles, ties, barrel hoops, etc., recovered, see "Commissioner of School and University Lands Report," *Wisconsin Messages and Documents*, 1860-80.

⁸⁶"Governor's Annual Message," in *ibid.*, 1876, I, 13.

timber.³⁷ Leniency by state and federal governments toward timber thieves was partly a necessity since public sentiment on the timber frontier was unsympathetic with a rigid enforcement of the land and trespassing laws. The State Forester, in 1906, commented on the results of this lax policy:

For many years timber trespass, or the stealing of timber, for some unaccountable reason has been treated most leniently and in Wisconsin both the government and the state have suffered enormous losses in this way, so much so that it is exceptional to find a forty, owned by either, which has not been trespassed upon and frequently every stick of merchantable timber has been cut. The state for many years placed a premium on such thievery, for it was customary to settle with trespassers upon the mere payment of the stumpage value of the timber. This worked as an open invitation for lumber companies and individual loggers, for they reasoned that their chances of getting caught were slight and even if they were caught they would only have to pay what the timber was worth. This laxity was a temptation to steal timber.³⁸

Thus, it was a typical frontier spirit—particularist, aggressive, self-assertive, and disapproving of all regulations interfering with individual freedom—that was largely responsible for the timber depredations. To them, that government was best which governed least. This condition led the United States Land Commissioner to declare in 1865. "Experience has taught us that when community interests conflict with law and public opinion is in conflict with its enforcement, it becomes virtually inoperative."³⁹

The reports of the United States Land Commissioner during the seventies and eighties were filled with accounts of trespassing, with suggestions for the reform of land laws, and with the reports of special agents on timber depredations.⁴⁰ Warnings were sent to Congress of the rapidly diminishing supply of timber in the Lake States, but to little avail. Previously the government had extended liberal privileges to pre-emptors and homesteaders by allowing them to cut timber for all necessary domestic purposes, for building and fencing purposes, clearing fields, and the like. Such leniency, it was thought, would be for the public welfare by placing good and permanent freeholders upon the public lands, whose energy in developing the country would add to the national

³⁷*Wisconsin General Laws*, 1905, Chap. 264; *First Annual Report of the State Forester of Wisconsin*, 1906, p. 18.

³⁸*First Annual Report* . . . 1906, p. 18.

³⁹*G.L.O. Report*, 1865, p. 26.

⁴⁰*Ibid.*, 1875-90.

wealth.⁴¹ Following a liberal interpretation of this traditional philosophy, settlers regarded timber as applicable to their every want and hesitated but little in taking it wherever they found it most convenient.⁴²

The pecuniary loss from timber depredations was only incidental to the injury done by the demoralizing effect wrought in the minds of people who saw government property openly taken, under the very eyes of public officers; and they came to regard this class of property as common, thus encouraging "communistic principles of the most dangerous tendencies."⁴³ Settlers considered their acts as performing a service to the government and nation in opening a wilderness at risk of life and with subjection to almost insuperable hardships. Moreover, the government endorsed this attitude. With public sentiment as such, there should be little wonder that laws and regulations failed to protect timber, or that prosecutions for violations, tried before juries, failed to convict.⁴⁴ Neither should there be surprise that the timber barons, with superior capital, brains, ingenuity, and organization, adapted the philosophy of the settlers to their own particular interests and soon concentrated the ownership of the major portion of the pine lands in a few hands. Human nature is such that waste, carelessness, and improvident use are prevalent unless one is compelled by authority upon the spot to act judiciously. Especially dastardly was the spoliation of Wisconsin timber by non-resident owners who had no personal interest in the future welfare and development of the region.

Despite the discouraging aspects of the problem as illustrated above, complaints from timbermen indicated that Government efforts weren't entirely a failure. As early as 1852, Representative Eastman of Wisconsin protested bitterly of the manner "in which

⁴¹*Ibid.*, 1867, p. 95. Cf. Franklin B. Hough, *Commissioner of Agriculture Report upon Forestry, 1877-88* (Washington: 1880), p. 15.

⁴²Hough, *op. cit.*, p. 15

⁴³*Ibid.*

⁴⁴Warren, *The Pioneer Woodman As He Is Related to Lumbering in the Northwest*, cited by Ise, *op. cit.*, pp. 40-41, states: "When a certain timber owner in Wisconsin tried to get a lawyer to prosecute a trespasser for stealing some choice timber from his own private land, he received the answer: 'Now, don't try that; all of those fellows have had "some of those hams," and you can't get a jury in all that country that will bring you a verdict of guilty, no matter how great and strong the evidence!'"

the whole power of the country, in the shape of the United States marshals, and whole posses of deputies and timber agents appointed by the President without the least authority of law have been let loose upon this devoted class of our citizens [the lumbermen]. They have been harassed almost beyond endurance with pretended seizures and suits, prosecutions and indictments until they have been driven almost to the desperation of an open revolt against their persecutors."⁴⁵

This "saw-log secessionism" is part of the story of the conflict between order and lawlessness on the timber frontier. Only in spots on this border in the longest-settled regions, where semblances of civilization and orderly thought had been established, did the people inveigh against borderism and demand that the government take strong measures with the "damned thieves."⁴⁶ As we have seen, the settlers were indifferent about the stealing of timber from public lands right and left, with a quite typical frontier disregard for property rights; and the government was not ready to do anything about it, but merely wagged a warning finger at the exploiters and appropriators. Hence the "Era of Magnificent Plundering" was set going by the creation of a "magnificent occasion" by which to profit; and "swamp law," even stooping to murder, became the code of the timber regions.⁴⁷

The government was not the only sufferer from trespassing. Neither prestige nor influential position guaranteed an individual or a corporation from the ravages of trespassers. Even as shrewd a timber operator as Philetus Sawyer found himself taken for losses by very ordinary-appearing citizens, who "took over" some of his best northern pine lands during his absence.⁴⁸ Lumber companies themselves were the perpetrators of many frauds, professing to be engaged in great public improvement works in order to share in the benevolent government land grants during the post Civil War mania of grants for railroad and internal-improvement projects. These grants usually paid for the projects about ten times.

⁴⁵*Congressional Globe*, 32d Congress, 1st Sess., Appendix, pp. 486, 851.

⁴⁶Jenks Cameron, *The Development of Forest Control in the United States* (Baltimore: Johns Hopkins Press, 1928), pp. 123-24.

⁴⁷*Ibid.*, pp. 135-49.

⁴⁸Joseph Schafer, *The Winnebago-Horicon Basin, A Type Study in Western History*, Wisconsin Domesday Book, General Studies, IV (Madison: State Historical Society, 1937), p. 294.

A certain ship-canal company, presumably the Sturgeon Bay Ship Canal Company, was granted great tracts of lands which it sold to loggers; homesteaders squatted on the lands, and, when the loggers came in, shot the horses of the latter and did everything possible to prevent operations.⁴⁸

Land commissioners and agents admitted the depredations, but were virtually helpless to prevent them under a lax administration of defective and improvident land laws. It seems as if the Land Department was conducted to the advantage of speculation and monopoly, private and corporate, rather than in the public interest. Patents were granted on the single proposition that nobody except the government had any adverse interest. This assertion is borne out by Commissioner Sparks' report in 1885 to the effect that "the vast machinery of the land department appears to have been devoted to the chief result of conveying the title of the United States to public lands upon fraudulent entries under strained constructions of imperfect land laws and upon illegal claims under public and private grants."⁴⁹

Certain of these practices might be justified because of the failure of the government to adopt any policy except sale of the land, which was not desired by timbermen, instead of selling the timber alone or leasing the land, as was done with mineral lands and saline springs. Timber that couldn't be secured honestly was taken by other means. Furthermore, as the lumbering industry expanded, it couldn't be carried on profitably except when the concerns had at their disposal extensive tracts of timber. A considerable outlay of capital was made in establishing camps, and millions of feet of timber were required each year. Only when the operator had a large supply of raw materials reasonably near his establishment could he compete with those in other regions who supplied the same market. But to anyone who has driven through the pine barrens of Wisconsin, where once stood some of the most magnificent white pine in the country, or who has struggled down any of the old logging streams in a canoe, where once steamboats plied their prows, it is hard to justify the waste, frauds, and special privileges of these looters. With the background of these

⁴⁸Nelligan, *op. cit.*, p. 282.

⁴⁹G.L.O. Report, 1885, pp. 3-4.

revelations, it is not difficult to appreciate Land Commissioner Sparks' report in 1886 to the effect: "An immense pressure is brought to bear upon the legislative and executive branches of the government to the end of securing immunity for the past and unlimited privileges for future spoliations of public timber lands, all ostensibly urged in the interest of bona fide 'agriculturists' or 'miners,' but notoriously in fact to forward gigantic schemes of speculation and monopoly in the remaining forests of the United States."¹¹

The leniency of the government land laws, the attitude of the public, the general atmosphere of corruption and fraud that penetrated into even the highest of public offices, the psychology that prevailed on the timber frontier, and the ability and keenness of the timber barons themselves—all these made possible the acquisition of the immense timber baronies in Wisconsin. In this manner thousands of acres of the best pine lands in the state were secured by such prominent lumbermen as Cadwallader C. Washburn, Thaddeus Pound, Philetus Sawyer, Isaac Stephenson, A. L. Stout, J. G. Thorpe, Dan Shaw, J. H. Knapp, Alexander Stewart, J. M. Rusk, and John Weyerhauser; and great absentee owners—Ezra Cornell and Frederick Weyerhauser, as well as many Michigan and eastern capitalists whose names are not as well known to the public—shared the spoils.¹² These great lumber kings inaugurated the so-called Wisconsin "saw-log dynasty" and controlled the politics of the state for thirty years or more as legislators, governors, and other official capacities. Moreover, their influence extended into the national legislature and even into the Interior Department. As Jenks Cameron has so well put it, "Borderism had a hey day in which it stole millions, wasted millions, and laid immense areas desolate, but it built an empire."¹³

¹¹*Ibid.*, 1886, p. 102.

¹²The U. S. Bureau of Corporations, Department of Commerce and Labor, *The Lumber Industry* (Washington, 1913), II, 91, gives an idea of the concentration of ownership of Wisconsin timber lands; also, Gates, *op. cit.*, pp. 652-56; *Wisconsin Assembly Journal*, 1871, Appendix, p. 71; and the *Em Claire Free Press*, July 11, 1867, and June 2, 1870.

¹³Cameron, *op. cit.*, p. 137.

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A REVISION OF THE GENUS *GAILLARDIA*

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Assistant in Botany 1939-42

HISTORY

The genus *Gaillardia* was first named by M. Fougereux de Bondaroy in 1786 (Fougereux, 1786) in honor of M. Gaillard de Charenton-neau, a patron of botany in France. This first publication described the genus only, but two years later, in 1788, it was republished with the species *G. pulchella* named (Fougereux, 1788). Fougereux states that the description is of plants grown from seed brought from Louisiana. Seeds from Paris were sent to England about 1787 by M. Thouin (Smith, 1804), and Drummond introduced various forms of *G. pulchella* from Texas into the English gardens between 1833 and 1835 (Hooker, 1834, 1837).

Gaillardia aristata was collected by Lewis and Clarke in 1806 (Meehan, 1898), and described validly by Pursh in 1814. Earlier, it had been listed by the seed dealer, Fraser, in his catalog of 1813, under the name of *Virgilia grandiflora* (Greene, 1899). The fact that both *G. pulchella* and *G. aristata* were known in Europe at this time resulted in their confusion, for the two appear very similar. They are separated principally by the perennial habit of *G. aristata* and the annual habit of *G. pulchella*. This fact was not at first established by the European botanists. On the contrary, in America, botanists seem to have confused *G. lanceolata*, which had been described by Michaux (1803), with *G. pulchella* and *G. aristata*.

Between 1820 and 1850 a number of new species of *Gaillardia* were published. *G. pinnatifida* was collected in the summer of 1820 by Dr. Edwin P. James, Assistant Surgeon of the U. S. Army, who succeeded Dr. William Baldwin as botanist for Major Long's expedition to the Rocky Mountains. The original locality was given only as "on the Canadian". The original description of this species was published by John Torrey in the *Annals of the Lyceum of Natural History* in 1828.

About this same time the South American *Gaillardia* was described by Sprengel (1826), from a specimen collected by Sellow on the Rio

Grande in Argentina. Sprengel, however, considered it to be a new genus, *Guntheria*, which Bentham and Hooker (1873) later correctly united with *Gaillardia*.

In 1839, *G. Amblyodon* was described by J. Gay from a specimen which had been collected by Drummond in Texas. Still later, Gray and Engelmann (1847) published *Agassisia suavis*, which they distinguished from *Gaillardia* on the basis of pistillate ray flowers.

The first complete revision of the genus was that of Gray in the *Synoptical Flora of North America* (1884). Gray recognized eleven species, all of which are considered valid in this treatment.

Several new species were added to those already described between 1885 and 1915. These included: *G. multiceps*, *G. Parryi*, *G. fastigiata*, *G. lutea* (Greene, 1897, 1902), *G. Mearnsii* (Rydberg, 1910), and *G. chrysantha* (Small, 1903).

The genus was again revised by Rydberg in *North American Flora* (1915). In this revision he published nine new species, one of which is considered valid in this treatment. Rydberg recognized a total of twenty-eight species. The present treatment recognizes seventeen North American species with two varieties and one South American species.

RELATIONSHIPS

Gaillardia is placed in the tribe Helenieae (Compositae) because of the non-caudate anther bases, the paleaceous pappus and the herbaceous involucre bracts. One important character of the tribe, that is, the naked receptacle, breaks down in *Gaillardia*, where the receptacle is beset with setiform or in a few cases with small dentiform fimbriae among the flowers. In the *Genera Plantarum* of Bentham and Hooker (1873), the genus is placed in the subtribe Euhelenieae of the Helenioideae by reason of its 2- to 3-seriate involucre and its turbinate, villous achenes. Gray (1884) places the genus in the subtribe Helenieae, which includes the Baerieae and the Euhelenieae of Bentham and Hooker. Rydberg (1915) breaks up the tribe Helenieae into fourteen subtribes, nine more than recognized in the Bentham and Hooker treatment and ten more than Gray's treatment. He separates *Gaillardia* along with *Hecuba*, *Dugaldia*, *Helenium* and *Amblyolepis* into the subtribe Gaillardianae on the basis of the obpyramidal achenes, the long throat of the disk corollas and the rotate involucre bracts. *Gaillardia* itself, he separates from the other above-named genera by reason of the scarious inner involucre bracts and the bristly receptacle. To the present writer, the

Gaillardianae as well as some of the other subtribe segregates of Rydberg are no more natural than the divisions already set up by Gray. It would seem preferable, therefore, to follow the more conservative treatment of Gray.

Because of its bristly receptacle, the genus *Gaillardia* is not easily confused with other genera of the Helenieae. It also differs, however, from *Helenium*, *Actinella*, and so forth, in the possession of larger heads, an enlarged cylindraceous throat in the disk flowers and neutral or sterile rays.

MORPHOLOGY

Roots. The species of *Gaillardia* are for the most part perennials; a few, however, are annuals or biennials.

Stems. The stems are herbaceous with suffruticose bases in a few species. They are either scapose or caulescent. They are usually striate and often clothed with short moniliform hairs.

Leaves. The leaves are alternate or basal, entire or pinnatifid or toothed or lobed. They are more or less hirsute or puberulent and are sometimes glandular punctate.

Hairs. All hairs on the plant, wherever they may occur, are moniliform in character and sometimes glandular.

Involucre. The involucre is saucer-shaped or rotate with the ovate or lanceolate bracts in 2-3 series. At least the upper half of the bract is strongly reflexed in fruit.

Receptacle. The receptacle is convex to sub-globose, alveolate and beset with stiff bristle-like setae in all but three of the species. The setae in these species are soft, short and flattened.

Ray-flowers. The rays are cuneate, tapering to a narrow base. They are usually neutral, but if pistillate rarely fertile (only *G. comosa*). They are sometimes wanting. In color they vary from yellow to red tipped with yellow to reddish-purple.

Disk-flowers. The disk flowers are perfect and fertile. The corolla is campanulate to cylindric; the corolla lobes are from short triangular to caudate-acuminate and covered with moniliform hairs. The styles may have either a short glabrous appendage or a long hispidulous appendage. The anthers are auricled at the base, but not caudate. The pollen grains are echinate and spherical.

Achenes. The achenes are obpyramidal, about twice as long as broad. They may be hairy from the base only or hairy all over.

Pappus. The pappus is made up of from 8-12 lanceolate to ovate-lanceolate bracts with a midrib which is produced into an awn.

CYTOLOGY

Materials and Methods: Young heads were fixed in Navashin's fixative (10 parts chromic acid, 4 parts formalin and 1 part glacial acetic acid.) They were dehydrated, infiltrated and imbedded in paraffin according to Johansen's tertiary butyl alcohol schedule (1937-1938). Sections were cut 15 microns in thickness, mounted serially, stained in crystal violet, and differentiated with picric acid according to Johansen's new method (1932). They were mounted in Clarite in the usual manner. The chromosome counts were made at metaphase or in a few cases at diakinesis of the first division.

Observations and Discussion: The genus *Gaillardia* has attracted only slight attention cytologically. Atwood (1937) investigated the last premeiotic division in some cultivated varieties of *G. aristata* and found that it was similar in all respects to any other mitosis. Morinaga, Fukushima, Kano, Maruyama and Yamasaki (1929) have reported a count of eighteen chromosome pairs for a cultivated variety of *G. pulchella*.

Cooper and Mahoney (1935) have reported in *G. aristata* that the heterotypic anaphases show one or more pairs of lagging chromosomes which appear as small rounded bodies between the two daughter nuclei at interkinesis. Similar bodies appear after the completion of the homoeotypic division. Small abortive microspores may result, or a small nucleus formed by one or more of the lagging chromosomes may be included with a larger nucleus in a two-nucleate microspore. The finding of such supernumerary nuclei in *G. aristata* "may furnish an indication that this plant is of hybrid origin," according to the above authors.

Chromosome counts

Species	No. of Pairs	Source of Material
<i>G. pulchella</i>	17, 18	Rocky soil, Medicine Park, Comanche Co., Oklahoma. J. Provine. Fall, 1940
		Old Indianola, Calhoun Co., Texas. V L. Cory, 11648. October 11, 1933.
<i>G. pinnatifida</i>	18	Dead Mans Canyon, 22 mi. s.w. of Colorado Springs, Colorado. H. M. Schmoll, 1549, July 23, 1924.

<i>G. arizonica</i>	18	Near Beardsley, Maricopa Co., Arizona. R. E. Collom. April 15, 1937.
<i>G. aristata</i>	18	S of Lewiston, Nez Perce Co., Idaho H. Aase Oct., 1940. Union Flat Creek near Pullman, Whitman Co., Washington S F. Biddulph. Spring, 1940. Near Oliver, B C S F Biddulph. July 30, 1941
<i>G. mexicana</i> var. <i>trifida</i>	18	Hacienda de San Jose de Raices, Galeana, Nuevo Leon, Mexico C H. Mueller, 2306. July 31, 1935
<i>G. fastigiata</i>	18	Clay soil, prairie, 8 mi n.w. of Stillwater, Payne Co., Oklahoma R Stratton. Sept 15, 1940
<i>G. suavis</i>	15	Sandy clay roadside, 8 mi. w of Manitou, Tillman Co., Oklahoma R Stratton. June 21, 1940

DISTRIBUTION

Attempts to determine the center of dispersal or area for genera, families, or larger groups have long been based on the ten criteria set forth by Adams (1902, 1905). Recently Cain (1943) has made a critical evaluation of these criteria. To the original ten he adds three more, one subsequently stated by Adams (1909), one by Vavilov (1927), and one by Hulten (1937).

Cain concludes that three of the original criteria are invalid and that certain others should be used only with a knowledge of their pitfalls or in combination with one or more of the other criteria. The criteria which are applicable to *Gaillardia* may be grouped under two approaches as follows:

Genetic criteria:

1. Location of the greatest differentiation of type.
2. Continuity and directness of individual variation or modifications radiating from the center of area along highways of dispersal.
3. Location of synthetic or closely related types.
4. Location of greatest number of dominant genes.

Geographical or ecological criteria:

1. Center indicated by the concentricity of progressive equiformal areas.

2. Continuity and convergence of lines of dispersal.
3. Direction indicated by geographical affinities.
4. Location of least dependence upon a restricted habitat.

In *Gaillardia* there are three sets of contrasting characters which may be used to separate the genus into three sections. These are: (1) receptacle with long, stiff setae *vs.* receptacle with weak, short setae; (2) long hispidulous style appendages *vs.* short, glabrous style appendages; (3) triangular corolla lobes *vs.* caudate-acuminate corolla lobes. Of the several possible combinations of these characters, three are found in the genus: (1) long setae, short corolla lobes, and short glabrous styles (AGASSIZIA); (2) short setae, long acuminate corolla lobes, and long hispidulous styles (HOLLANDIA); and (3) long setae, short corolla lobes, and long hispidulous styles (EUGAILLARDIA).

The species possessing these three combinations fall into three definite geographic areas. A critical analysis of the distribution of the genus with regard to the morphological characters makes possible the determination of a probable center of dispersal or area according to the criteria listed above. Table I will prove helpful in bringing out the relationships upon which the center of dispersal is based.

Genetic criteria:

1. Location of the greatest differentiation of type: All six characters in the three combinations occur in Texas. As indicated in Table I, the first combination occurs only in Texas and slightly to the south, the second only in Texas and eastward, and the third only in Texas and westward. Texas, therefore, would be indicated as the center of dispersal since it possesses all of the most widely separated characters found in the genus.

2. Modifications radiating from the center of dispersal along high-ways of dispersal: The open ecological formations radiating from Texas are the seashore along the Gulf of Mexico to the east and the desert grassland, desert shrub, and desert woodland to the west. With reference to Table I, it will be noted that the species possessing the second combination have followed the eastward lane, whereas those possessing the third combination have followed the westward lane. Species with the first combination of characters have migrated neither east nor west and apparently little southward. Inasmuch as the collections from Texas are not numerous, however, more southward extensions may be found later. Members of the genus *Gaillardia*, then, appear

TABLE I¹
Taxonomic Character Combinations in the Genus *Gaillardia* in Relation to the Geographic Locations of the Species

Geographic Location	Taxonomic Characters			Number of		Species Name
	receptacle	style	corolla lobes	sp.	var.	
(1) Texas - endemic south eccentric	setae long	short	triangular	1	0	<i>G. suavis</i>
	setae long	short	triangular	1	0	<i>G. comosa</i>
(2) Texas & east eccentric	setae short	long	caudate	3	0	<i>G. lanceolata</i> , <i>G. lutea</i> & <i>G. fastigiata</i>
(3) Texas - concentric	setae long	long	triangular	2	0	<i>G. Amblyodon</i> <i>G. pulchella</i>
Texas-south eccentric	" "	"	"	1	1	<i>G. mexicana</i>
Texas-west eccentric	" "	"	"	3	1	<i>G. mexicana</i> var. <i>trifida</i> <i>G. pinatifida</i> <i>G. pinatifida</i> var. <i>linearis</i> <i>G. neomexicana</i> & <i>G. multiceps</i>
West (Utah & Arizona)	" "	"	"	5	0	<i>G. arizonica</i> , <i>G. flava</i> , <i>G. Parryi</i> , <i>G. Meorum</i> & <i>G. spatulata</i>

¹The geographic locations of the sections of the genus are shown in Figs. 1, 2, and 3.

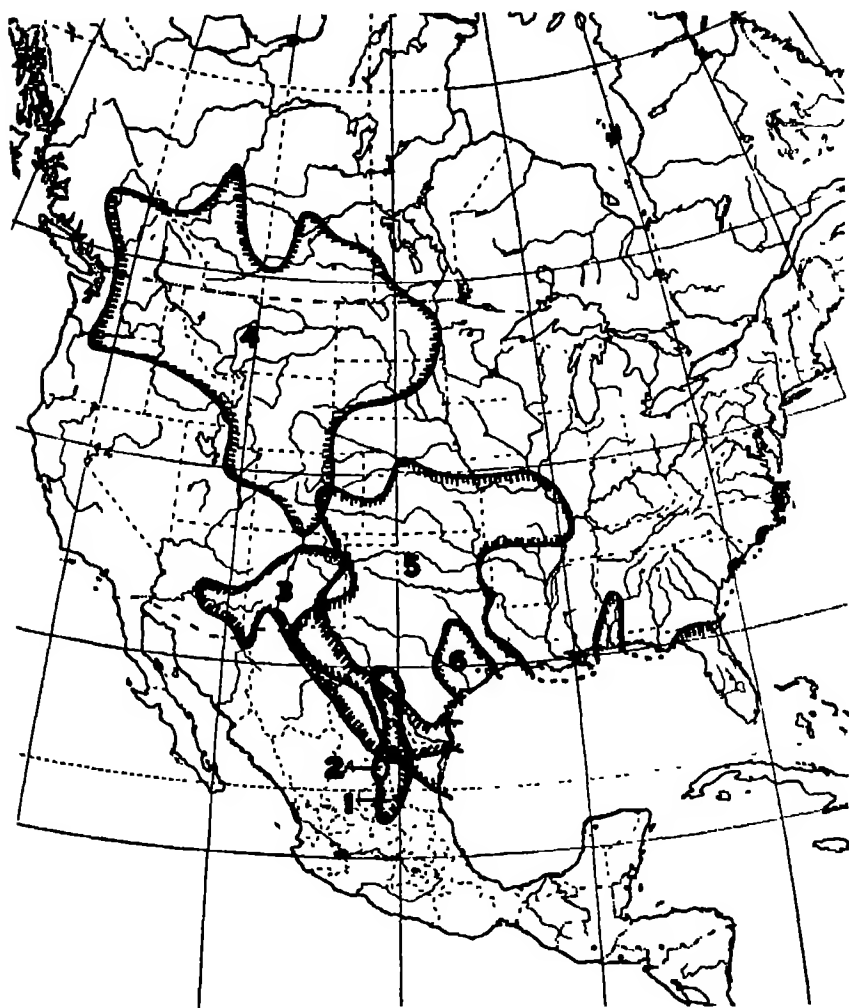


FIG 1

Distribution of some of the species of the section EUGAILLARIDA

- | | |
|---|--------------------------------|
| 1. <i>Gaillardia mexicana</i> | 4. <i>Gaillardia aristata</i> |
| 2. <i>Gaillardia mexicana</i> var. <i>trifida</i> | 5. <i>Gaillardia pulchella</i> |
| 3. <i>Gaillardia neomexicana</i> | 6. <i>Gaillardia amblyodon</i> |

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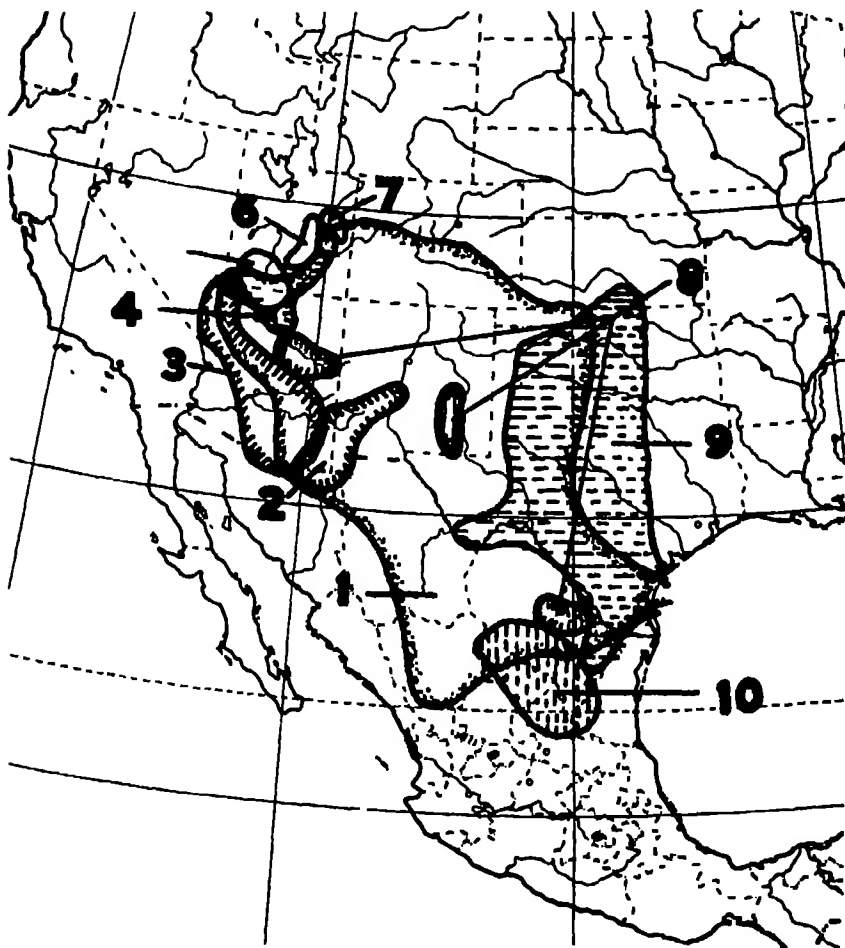


FIG 2

Distribution of some of the species of the section *EUGAILLARDIA*

- | | |
|--|-------------------------------|
| 1 <i>Gaillardia pinnatifida</i> | 5 <i>Gaillardia spatulata</i> |
| 2 <i>Gaillardia pinnatifida</i> var
<i>linearis</i> | 6 <i>Gaillardia Parryi</i> |
| 3 <i>Gaillardia arizonica</i> | 7 <i>Gaillardia flava</i> |
| 4 <i>Gaillardia Mearnsii</i> | 8 <i>Gaillardia multiceps</i> |

Distribution of the North American species of the section *ALASSIZIA*

- | | |
|-----------------------------|------------------------------|
| 9. <i>Gaillardia suavis</i> | 10. <i>Gaillardia comosa</i> |
|-----------------------------|------------------------------|

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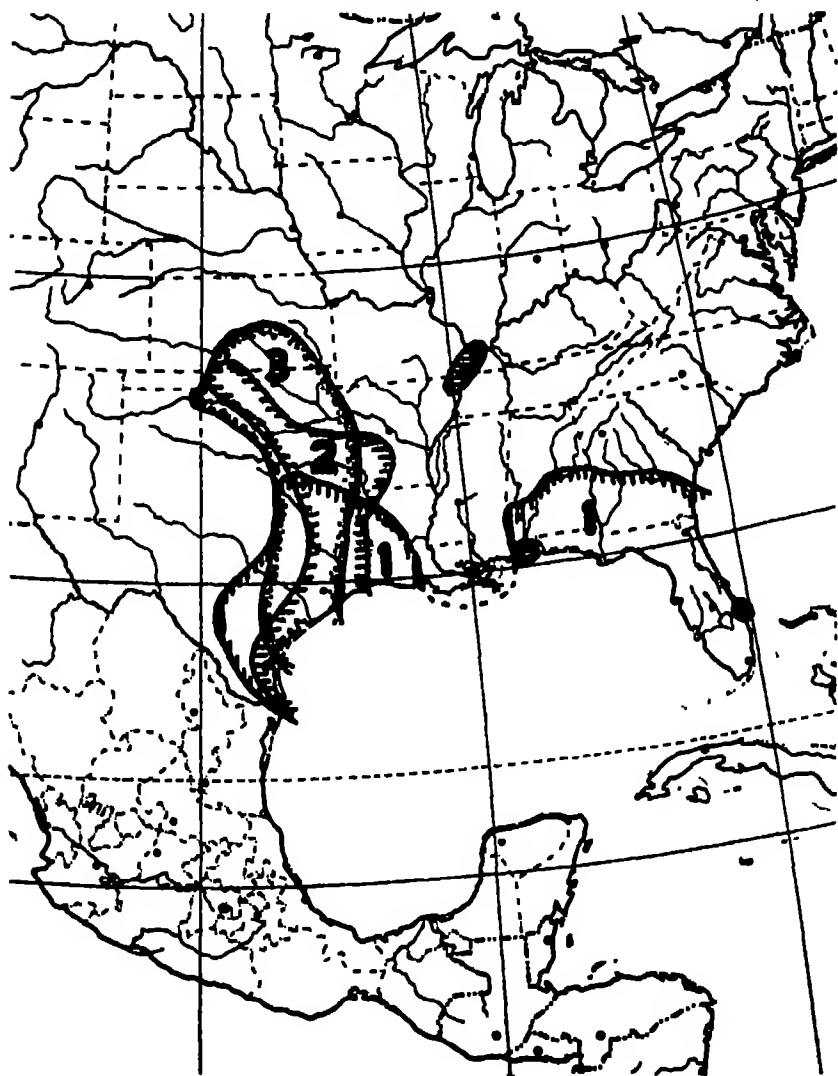


FIG. 3

Distribution of the species of the section HOLLANDIA

1. *Gaillardia lanceolata*
2. *Gaillardia lutea*
3. *Gaillardia fastigiata*

Goode Bass Map No. 102. By permission of The University of Chicago Press.

to have migrated from the Texas area into unsaturated ecological niches.

3. Location of the greatest number of closely related forms: From the table it can be seen that the third combination of characters is found in the greatest number of species. The area where these species occur would naturally be the area with the greatest number of closely related forms. The accompanying map will show that all of these species occur together only in a small area of eastern Utah and Arizona. Because this area cannot be the original home by the first two criteria, one may assume that it represents a possible secondary center of dispersal.

4. Increase in the number of dominant genes toward the center of dispersal: At present there are no genetic data of this type available for the genus. A genetic analysis would be both desirable and helpful.

Geographical and ecological criteria:

1. Two centers of dispersal are indicated by the concentricity of progressive equiformal areas—that in Texas and that in Utah and Arizona. Though the center in Utah and Arizona contains a number of endemics, these belong only to one section of the genus, so that it is difficult to visualize this area as a center for the entire genus. It would seem that this area might represent a more recent center of dispersal.

2. As has been pointed out above (2), all morphological forms radiate from Texas along open ecological lanes. The convergence center is Texas.

3. Direction indicated by geographical affinities: This is not particularly applicable to *Gaillardia*. One would expect, however, that the genus has radiated from the savannah to a "lower" ecological level, such as desert formations where more unfilled niches remain. This might indicate that the center in Utah and Arizona is younger than that in Texas.

4. Location of least dependence upon a restricted habitat: It is extremely difficult to draw any conclusions regarding habitats, inasmuch as most herbarium specimens lack uniform data of this kind; but the genus probably occurs in more varied habitats in Texas than in any other place. In western deserts it seems to be confined to the more suitable habitats.

It would appear, then, that since the last geological stabilization the genus has been dispersed from the Texas area, which is well known to be one of the old land areas in the United States. It is also probable

that a new secondary center of dispersal for the genus has evolved in eastern Utah and Arizona. It is interesting that the single representative of the genus in South America belongs to the group which now occupies the closest approximation to the present center of dispersal.

ECONOMIC IMPORTANCE

Since the beginning of its botanical history, *Gaillardia* has been valued as a garden ornamental, and with its numerous varieties and forms it remains a popular garden flower today. The cultivated annuals are derived for the most part from *Gaillardia pulchella*, and the perennials are derived from *Gaillardia aristata* (Bailey, 1941).

ACKNOWLEDGEMENTS

The present study was undertaken at the suggestion of Doctor Marion Ownbey, under whom the taxonomic study was made. The writer takes this opportunity to express her appreciation for his interest and advice and for obtaining the loan of most of the herbarium material examined. Thanks are due the curators of the several herbaria for the loan of material in their charge and especially to Doctor George T. Moore and Doctor J. M. Greenman for the use of library and herbarium facilities at the Missouri Botanical Garden. The writer is indebted to Doctor Hannah C. Aase for kind help and suggestions in the cytological study. She also wishes to express her thanks to Ivan M. Johnston, V. L. Cory, Teodoro Meyer, Robert Runyon, Robert Stratton, P. A. Winkler, Mary T. Edwards, Mildred M. Plodeck, and U. T. Waterfall, who sent seeds and herbarium material for study.

All maps except the one to show distribution of *G. flava*, *G. Parryi*, *G. arizonica* and *G. spathulata* are based on *Goode Base Maps No. 9, 102 or 103* by permission of the University of Chicago Press.

ABBREVIATIONS

G	Gray Herbarium, Harvard University
M	Missouri Botanical Garden Herbarium, St. Louis, Missouri
N	United States National Herbarium, Washington, D. C.
P	Pomona College Herbarium, Claremont, California
PA	Philadelphia Academy of Sciences Herbarium
RM	Rocky Mountain Herbarium, University of Wyoming, Laramie, Wyo.

UC	University of California Herbarium, Berkeley, California
US	Utah State Agricultural College Herbarium, Logan, Utah
Univ. Sask.	University of Saskatchewan Herbarium, Saskatoon, Saskatchewan
WS	State College of Washington Herbarium, Pullman, Washington

TAXONOMIC TREATMENT

Gaillardia Foug. in Obs. Phys. 29: 55. 1786.

Gaillardia Foug. in Mem Acad. Sci Paris 1786: 5 1788.

Calonnea Buc'hoz ex Lam., Encyc. 2: 590. 1788.

Virgilia L'Her., Virgilia, 1788.

Polatherus Raf. in Am. Mo. Mag. 2. 268. 1818.

Guntheria Spreng, Sys Veg. 3: 356. 1826.

Cercostylis Less., Syn. Comp. 239. 1832.

Agassisia Gray and Engelm. in Proc. Amer. Acad. 1: 49. 1847.

Original description

Nous la nommerons *Gaillardia* (pulchella) *foliis alternis lanceolatis semi amplexantibus, floribus subfoliariis terminalibus purpureo-flavis*, du nom de M. Gaillard de Charentonneau, que, aux devoirs de la Magistrature, a su renir, comme delassement, la culture des plantes et l'etude de la botanique.

Amplified Description

Annual or perennial herbs, rarely suffruticose at the base, either scapose or caulescent. Leaves alternate or basal, entire, toothed or pinnatifid with long petioles or somewhat clasping. Heads radiate or discoid, peduncled. Involucre herbaceous, rotate, the ovate or lanceolate bracts in 2-3 series, strongly reflexed in fruit. Receptacle convex, aveolate with long setiform or in some cases small dentiform fimbriae. Ray flowers usually neutral or if pistillate not fertile (except in *G. comosa*), sometimes wanting, trifid. Disk flowers hermaphrodite and fertile, regular with a short tube and a large cylindraceous throat, the lobes from triangular to acuminate and covered with moniliform hairs. Anthers not caudate at the base. Style-branches appendaged, the appendages usually long and hispidulous, but sometimes short and glabrous. Achenes broadly obpyramidal, wholly or partly covered with long hairs. Pappus thin and bract-like, lanceolate to ovate with an awn almost as long as the body.

TYPE SPECIES: *G. pulchella* Foug.

KEY TO THE SECTIONS

- A. Receptacle with long, stiff setae; style branches long and hispidulous; lobes of the disk corollas triangular.....EUGAILLARDIA
 AA. Receptacle with long, stiff setae; style branches short and glabrous; lobes of the disk corollas short-triangular.....AGASSIZIA
 AAA. Receptacle with small, dentiform setae; style branches long and hispidulous; lobes of the disk corollas caudate-acuminate.....HOLLANDIA

KEY TO THE SPECIES AND VARIETIES

Section EUGAILLARDIA

a. Plants annual.

b. Achenes glabrate above.

- c. Involucre bracts only slightly chartaceous at the base; rays red tipped with yellow.....1. *G. pulchella*

- cc. Involucre bracts chartaceous with herbaceous tips; rays dark red.....2. *G. Amblyodon*

- bb. Achenes hairy all over.....9. *G. arisonica*

aa. Plants perennial.

b. Achenes glabrate above.

- c. Rays broadly cuneate, yellowish-red to purple, not prominently veined.....3. *G. mexicana*

- cc. Rays slender, light purple with yellow tips, strongly veined.....3a. *G. mexicana* var. *trifida*

bb. Achenes hairy all over.

- c. Involucre bracts merely ciliate.....4. *G. neomexicana*

- cc. Involucre bracts ciliate and covered with moniliform hairs.

d. Disk yellow

- e. Leaves pinnatifid.....7. *G. flava*

cc. Leaves entire or only toothed.

- f. Leaves all basal.....10. *G. Parryi*

- ff. Leaves partly cauline.....11. *G. spathulata*

dd. Disk brown.

- e. Plants densely villous; plants without a woody caudex.

- f. Leaves pinnatifid.....6. *G. pinnatifida*

ff. Leaves entire or only lobed.

- Leaves narrowly linear, entire or linear lobed.....6a. *G. pinnatifida* var. *linearis*

- Leaves oblanceolate, entire or with broad lobes.

- Leaves long petioled.....8. *G. Mearnsii*

- Leaves sessile or short petioled 5. *G. aristata*
 cc. Plants minutely puberulent; caudex thick
 and woody 12. *G. multiceps*

Section AGASSIZIA

- a. Rays usually not present, if present not fertile 13. *G. suavis*
 aa. Rays present and fertile 14. *G. comosa*
 aaa. Rays present or absent, if present not fertile; South
 American 15. *G. megapotamica*

Section HOLLANDIA

- a. Disk brown.
 b. Heads long pedunculate, branches slender; rays
 often wanting 15. *G. lanceolata*
 bb. Heads short pedunculate, branches stout and some-
 what stiff; rays present 16. *G. fastigiata*
 aa. Disk yellow 17. *G. lutea*

Section I. EUGAILLARDIA¹1. *Gaillardia pulchella* Foug. in Mem. Acad. Sci. Paris 1786: 5. 1788.

Gaillardia bicolor Lam., Encyc. 2: 590. 1788.

Calonnea pulcherrima Buchoz ex Lam., Encyc. 2: 590. 1788, as synonym.

Virgilia helioides L'Her., Virgilia, 1788.

Gaillardia alternifolia Raeusch., Nom. ed. 3: 251. 1797 (as *Galordia*).

Gaillardia bicolor var. *Drummondii* Hook. in Bot. Mag. t. 3368. 1834.

Gaillardia picta Sweet, Brit. Fl. Gard. 2: 3: t. 267. 1834.

Gaillardia Drummondii DC., Prodr. 5: 652. 1836.

Gaillardia bicolor Drummondii f. *intergerrima* Hook. in Bot. Mag. t. 3551. 1837.

Gaillardia picta tricolor Planch. in Fl. Serres 6: 337. 1851.

? *Gaillardia lobata* Buckl. in Proc. Acad. Philad. 13: 459. 1862.

? *Gaillardia scabrosa* Buckl. in loc. cit.

Gaillardia pulchella picta A. Gray, Syn. Fl. N. Amer. 1st: 352. 1884.

Gaillardia pulchella var. *albiflora* T. D. A. Cockrell in Gard. Chron. Ser. 3, 55: 67. 1914.

Gaillardia villosa Rydb. in N. Amer. Fl. 34th: 135. 1915.

A caulescent annual which sometimes becomes woody at the base; stem 3-6 dm. high, usually branched, striate with short moniliform hairs; leaves 2-8 cm. long, oblong to oblanceolate, coarsely toothed or lobed or entire, acute or rounded at the apex, sessile and somewhat clasping or tapering into a short petiole, both sides of the leaf with some moniliform hairs, the leaf margins somewhat ciliate; peduncles 5-15

¹EUGAILLARDIA sect. nov. Receptaculum setis longis rigidis; styli rami longohispiduli; corollae disci dentibus triangularis. Type species *G. pulchella*.

cm. long; involucre bracts lanceolate, acute, chartaceous at the base, herbaceous above, ciliate on the margins with moniliform hairs, the bracts reflexed at anthesis; setae of the receptacle subulate, twice the length of the body of the achene; ray flowers 6-10, neutral, ligules 12-20 mm. long, 3-toothed at the apex, red tipped with yellow or sometimes almost all red or all yellow; disk 15-20 mm. broad; disk corollas yellow below and purplish red above by reason of the long moniliform hairs or occasionally with yellow hairs, the corollas 6-7 mm. long, cylindro-campanulate, lobes triangular-acuminate; pappus scales 5-6 mm. long, lanceolate and gradually attenuate into an awn; schenies about 2 mm. long, hirsute from the base only, the hairs scarcely equaling the body of the achene.

Fougeroux designated no type for this species, but the original description is accompanied by several figures.

This is a large polymorphic species which is apparently little restricted in its habitats. It varies considerably in leaf form and to some extent in the color of the ray flowers. One of the forms occupying the sandy shores of the Gulf of Mexico is somewhat succulent; it was set apart by Gray as variety *picta*. Because it does not fill any ecological niche alone or completely, however, it seems best not to maintain its varietal status.

DISTRIBUTION. On the Atlantic seaboard from Virginia to Florida and along the Gulf of Mexico to the Tropic of Cancer, inland to eastern New Mexico and northward to southern Nebraska and northern Missouri. (See Fig 4.)

Specimens examined TEXAS ANDERSON CO. near Wells Creek, June 11, 1899, *Eggert s n* (M) ARANSAS CO. 5 mi. e of Rockport, Sept. 19, 1936, *Cory 20428* (G). ATASCOSA CO. sandy soil, roadside, Pleasanton, May 3, 1919, *Schuls 77* (N); sandy soil, April 21, 1920, *Schuls 72* (G). BASTROP CO. Bastrop, 1928, *Duval, H s n* (N) BEXAR CO. *Jerry 40* (N type of *G villosa*, M, NY); in campia, San Fernando de Bexar, June 1828, *Berlandier 617* (G, M, N, NY), in campia, San Fernando de Bexar, June 1828, *Berlandier 657* (G, M, N, NY); San Antonio, alt. 600 ft., April 17, 1894, *Heller, A. A. 1584* (G, M, N, PA, UC, RM, NY, WS); San Antonio, 1897, *Wilkinson 111* (M); Alamo Heights, San Antonio, May 2, 1900, *Larrabee s n* (N); growing in sandy loam soil, near Bracken, July 14, 1903, *Groth 68* (G, N, NY); San Antonio, April 19, 1911, *Clemens, Mr. & Mrs. J. 984* (M, RM, P); field, chaparral, San Antonio, May 8, 1920, *Pennell 10357* (PA, NY); near Elmendorf Lake, June 11, 1931, *Mets 2* (NY). BREWSTER CO. cultivated and waste ground, along irrigation ditch, Alpine, May 30, 1928, *Palmer 34246* (M, NY). BRISCOE CO. Floyd Crossing, Tule Canyon, May 10, 1930, *Reed & Demaree 7631* (N). BURNET CO. July, 1892, *Schaupp s n* (NY); s. e. corner, June 19, 1895, *Hill 23* (N). CALHOUN CO.: Port Alton, Aug. 10, 1920, *Drushel s n*.

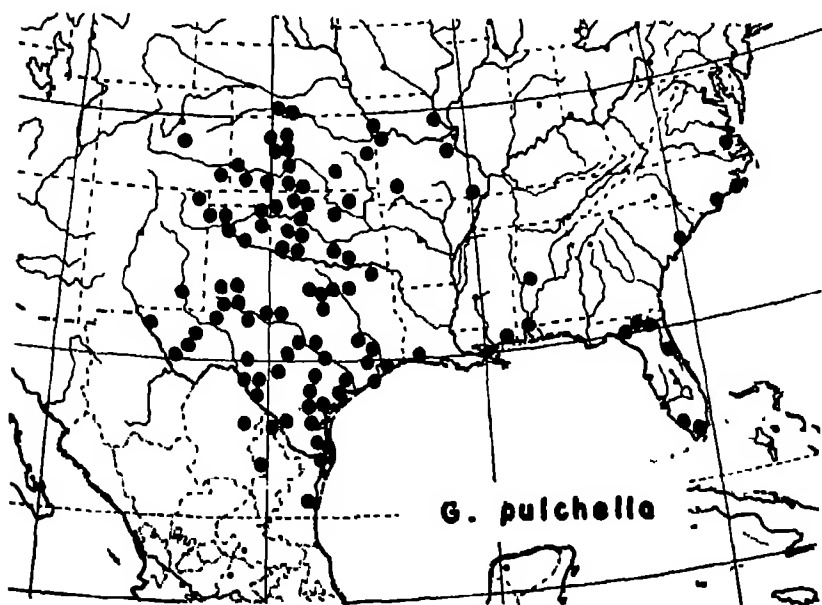
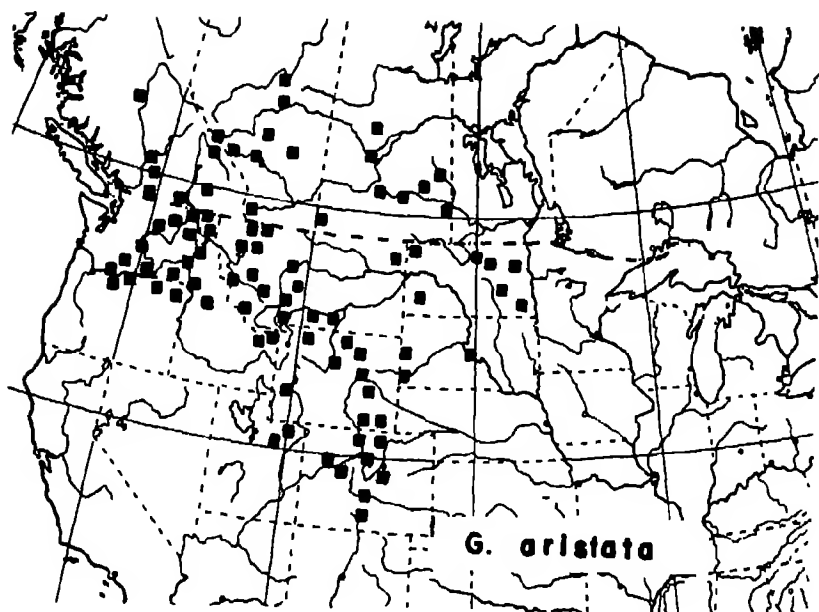


Fig. 4. Collection stations for *Gaillardia aristata* and *Gaillardia pulchella*.

(M); Old Indianola, Oct. 11, 1933, *Cory* 11648 (G). CAMERON CO.: Port Isabel, 1889, *Neally* 76 (N); near Brownsville, Apr. 29, 1895, *Townsend* 27 (N); Sarita, April 11, 1905, *Lewton*, F. L. 128 (N); Reynoldsville, April 11, 1905, *Lewton* 143 (N); openings and edges of woods, Brownsville, May 16, 1919, *Hanson* 481 (N, NY); clay dunes, Bahia Grande country e. of Brownsville, April 14, 1925, *Small & Wherry* 11854 (NY); in palm grove, Las Palmas, near Brownsville, April 14, 1925, *Small & Wherry* 11868 (NY); sandy soil, in orange orchard, Santa Rosa, March 11, 1937, *Runyon* 1640 (N). CHAMBERS CO.: beach 3 mi. e. of High Island, Sept. 17, 1936, *Cory* 20231 (G). COMANCHE CO.: prairies near Comanche, May 9, 1900, *Eggert s. n.* (M); Comanche Spring, May 1849, *Lindheimer* 916 (M, G, N, UC, NY). COMAL CO.: Newbraunfels, May 1848, *Lindheimer* 917 (M, G, N, NY); vicinity of Bracken, 1903, *Groth* 235 (G). CRANE CO.: from the sand desert near Crane, on State Highway No. 51, July 19, 1938, *Cutak* 23 (M). DALLAM CO.: Dalhart, June 24, 1921, *Jones* 355 (G, UC). DALLAS CO.: Dry uplands, Dallas, May, 1880, *Reverchon* 524 (M, N); Fort Worth & Dallas, June 15 & June 18, 1898, *Glatfelter s. n.* (M); East Dallas, June 25, 1899, *Eggert s. n.* (M); on prairie, Dallas, May 8, 1900, *Bush* 683 (G, M, N, NY); dry soil, large patches, vicinity of Dallas, May 6, 1928, *Stephenson s. n.* (N); prairies near Dallas, May, June, *Reverchon* 1506 (G, N, PA, NY). DIMMIT CO.: Carriso Spring, April 26, 1931, *Jones* 28004 (UC, M, P). DUVAL CO.: near San Diego, April 21, 1930, *Martin* 94 (N). ECTOR CO.: dunes s. of Odessa Tank, Sept. 1881, *Harvard s. n.* (N). EDWARDS CO.: Frio Water-Hole, alt. 2000 ft., June 30, 1895, *Hill* 60 (N). FISHER CO.: Grady, May 26, 1901, *Shepherd s. n.* (N). GALVESTON CO.: Galveston Island, Sept. 1841, *Lindheimer s. n.* (M); Galveston, Sept. 18, 1877, *Ward s. n.* (M, N); Galveston, 1882, *Letterman s. n.* (M); Galveston, Sept. 23, 1901, *Tracy* 7359 (G, M, N); Galveston, March 12, 1928, *Benke* 4591 (G); along roadways and on beaches about Galveston, forming clumps, Jan. 15, 1932, *Nelson, A & R. A.* 65 (G, UC, RM). GILLESPIE CO.: *Jermy s. n.* (M, N). GRAYSON CO.: Dennison, July 1888, *Pammel s. n.* (M). HARRIS CO.: Houston, Oct. 24, 1899, *Bush* 233 (M); prairies, Harrisburg, March 1875, *Joor s. n.* (N); Laporte, June 16, 1903, *Reverchon s. n.* (M); open ground, Houston, Sept. 16, 1915, *Palmer, E. J.* 8570 (M, N, NY); on Bay Shore, 3 mi. w. of Goose Creek, Nov. 19, 1918, *Hanson s. n.* (M, NY); Laporte, Aug. 8, 1913, *Fisher* 646 (N); Laporte, July 4, 1919, *Fisher, G. L.* 40 (N); Morgans Point, April 14 1934, *Cory* 8191 (G). HAYS CO.: San Marcos and vicinity, Summer 1899, *Stanfield s. n.* (NY). HEMP-HILL CO.: deep sands, river bottoms, Canadian, June 17-18, 1918, *Palmer* 14119 (N, M); Canadian, July 8, 1912, *Cowdii s. n.* (UC). HIDALGO CO.: Weslaco, March 12, 1936, *Parks* 17966 (G). HUDSPETH CO.: Fort Hancock, June 23, 1891, *Evans s. n.* (M). HOOD CO.: prairies near Granbury, May 6, 1900, *Eggert s. n.* (M); on calcareous prairie, near Center Mills, May 14, 1939, *Blackwell* 68 (NY). HOWARD CO.: prairies near Big Spring, June 11, 1900, *Eggert s. n.* (M); along road, 19 mi. e. of Big Spring, April 17, 1932, *Wilkins* 1436 (PA). JACKSON CO.: banks of Aransas River, July 2, 1915, *Drushel s. n.* (M). KAUFMAN CO.: vicinity of Terrell, May 10, 1904, *Tyler s. n.* (N). KERR CO.: along rocky spring creek, Lacey's Ranch, June 3, 1916, *Palmer* 10034 (N, M); Kerrville, April, ———, *Milligan s. n.* (N). KLEBER CO.: Kingsville, April 10, 1905, *Tracy* 8957 (G, M, N, NY);

Kingsville, Mar. 24, 1920, *High 109* (M). LIPSCOMB CO. Lipscomb, July 1, 1903, *Howell 33* (N, NY). LLANO CO. Llano, May 14-15, 1899, *Bray 330* (N); Bluffton, May 31, 1936, *Fisher 3640* (N). LUBBOCK CO. Caprock Canyon, April 24, 1930, *Demaree 7537* (G, M, N); near Lubbock, 1930, *Demaree 7631* (M); Lubbock, June 3, 1930, *Demaree 7738* (G, M, N, UC). MARTIN CO. prairie near Stanton, June 13, 1900, *Eggert s. n.* (M). MAVERICK CO. Bottom, Eagle Pass, April 1883, *Harvard s. n.* (N). MIDLAND CO. Midland, May 9, 1902, *Tracy 7877* (G, M, N, NY). MITCHELL CO. prairies near Colorado City, June 8, 1900, *Eggert s. n.* (M). MONTGOMERY CO. dry hillsides, near Harmons Creek, July 16-17, 1909, *Dixon 447* (G, NY); Willis, May 18, ———, *Warner, s. n.* (M). NUECES CO. Corpus Christi Bay, Dec 11-20, 1879, *Palmer 729* (M, G, N), Corpus Christi, March 5-12, 1894, *Heller 1424* (N, UC, WS, NY), Corpus Christi, April 4, 1905, *Tracy 8953* (G, M, NY); flats, North Beach, Corpus Christi, Aug 7, 1921, *Ferris & Duncan 3236* (M, NY), Flour Bluff, Sept. 20, 1936, *Cory 20614* (G). NOLAND CO.: Vista, May 1892, *Trelease s. n.* (M); PALO PINTO CO. vicinity of Mineral Wells, June 8, 1931, *Gillespie 5215* (N, UC). PRESIDIO CO. Marfa, Oct. 1, 1883, *Harvard s. n.* (N); Marfa, Aug 24, 1940, *Hinckley s. n.* (G). RANDAL CO. sandy river banks, in canyon, June 14, 1918, *Palmer 14071* (N, M). RUNNELS CO.: 3 mi. s.w. of Maverick, April 26, 1933, *Cory 5628* (G). SAN PATRICIO CO. near Mathis, April 5, 1931, *McKelvey 1717* (G, P). SHERMAN CO. near Stratford, May 30, 1931, *McKelvey 2472* (G, N, P). TARRANT CO. Fort Worth, June 25, 1909, *Ruth 82* (N, NY), open grounds, Glenwood, June 25, 1912, *Ruth 82* (G, M, P); on plains, near Polytechnic, May 5, 1914, *Ruth, A 82* (N); in dry field Fort Worth, June 13, 1932, *Moldenke 6956* (NY). TOM GREENE CO. Old Geo Richardson Ranch, April 29, 1929, *Cory 825* (G). TRAVIS CO. dry ground, Austin, May 16, 1872, *Hall 351* (G, M, NY, P); prairie, Austin, April 15, 1898, *Bray 113* (NY); Austin, April 26, 1908, *York 44* (M); vicinity of Austin, 1928, *Normand 724* (M); flood plains of Colorado River, Austin, April 23, 1929, *Armer 5347* (N). UVALDE CO.: 5 mi. s. e. of Uvalde, June 23, 1935, *Cory 15036* (G); bottoms, Leona River, 7 mi. s.e. of Uvalde, June 23, 1935, *Muns 13311* (UC, P). VALVERDE CO. Painted Cave, banks of the Rio Grande River, March 12, 1893, *Davy 37* (UC); Devils River, May, 1913, *Orcutt, C. R 6081* (M). WALKER CO. May 6-12, 1910, *Dixon, 591* (N, RM). WEBB CO. sands, Laredo, March 21, 1903, *Reverchon s. n.* (M); roadside gravel, 6 mi. n. of Laredo, March 15, 1935, *Wiegand & Wiegand 2510* (G). WILLACY CO. open, sandy soil, at end of Highway No. 96, April 10, 1937, *Runyon 1638* (N).

ALABAMA. DALLAS CO. borders of fields, Marion Junction, May 22, 1893, *Mohr s. n.* (N). MOBILE CO.: Pinto Island, Delta Mobile River, May 1882, *Mohr 861* (N).

MISSISSIPPI. HARRISON CO. Biloxi, Aug. 1, 1896, *Pollard 1151* (N).

LOUISIANA. CAMERON CO.: vicinity of Cameron, Nov. 29, 1910, *McAtee 1901* (N); same data, *McAtee 1949* (N); same data, *McAtee 1959* (N); same data, *McAtee 1960* (N).

FLORIDA. COLUMBIA CO. swamps e. of Lake City, July 8, 1924, *Small & Desvinkeler 11371* (G, N, NY). DADE CO.: pinelands about Sykes Hammock, July 2,

1915, *Small, Mosier & Small* 6763 (NY). DUVAL co. weed, sandy roadside, 10 mi. w. of Jacksonville, July 28, 1927, *Wiegand & Manning* 3462 (G. P.). MONROE co.: Big Pine Key, Feb. 25, 1936, *Killip* 31617 (NY). TAYLOR co. roadsides, Perry, Nov. 30, 1920, *Small* 9681 (NY). VOLUSIA co.: in dry sand, Daytona Beach, Oct. 9, 1917, *Francis* 159 (N); Dunes, Daytona Beach, May 8, 1918, *Small* 8673 (NY); sand dunes opposite Daytona, April 1, 1920, *Small & Dewinkeler* 9412 (G, N, NY); sand dunes, Daytona to Mosquito Inlet, Dec. 6, 1920, *Small & Dewinkeler* 9720 (NY); in dry sandy soil along roadside, near Mosquito Inlet, Nov. 28, 1929, *Moldenke* 178 (M, NY).

VIRGINIA GREENSVILLE co. sandy roadside s. of Emporia, Aug. 18, 1939, *Fernald & Long* 11205 (G).

NORTH CAROLINA BRUNSWICK co. dunes at Southport, Aug. 31, 1938, *Godfrey* 6377 (G). CARTARET co. roadside near Atlantic, Sept. 1, 1938, *Godfrey* 6439 (G). NEW HANOVER co. escaped from cultivation and established at the beach, Wilmington, April 25, 1923, *Churchill* s. n. (G, M).

SOUTH CAROLINA CHARLESTON co.: Sullivans Island, June 8, 1902, *Palmer* s. n. (N); sandy open street, probably an escape, Sullivans Island, Harbor of Charleston, May 3, 1912, *Robinson* 269 (G).

MISSOURI DUNKLIN co. Malden, July 20, 1895, *Bush* 409 (M, NY). FRANKLIN co.: near Pacific, 1899, *Letterman* s. n. (M). GREENE co. Springfield, July 4, 1903, *Standley* s. n. (N). JACKSON co. Atherton, July 18, 1896, *Bush* 391 (M), Atherton, June 7, 1912, *Bush* 6802 (G, M, N, NY); Independence, Aug. 31, 1936, *Bush* 15698 & 15699 (M). PIKE co. dry open slopes, Robert farm, Clarksville, June 15, 1915, *Davis* 4536 (M), near Clarksville, June 15, 1916, *Davis* 4319 (M). PLATTE co.: waste slopes and fields on exposed slopes, 1 mi. n. of Weston, Sept. 15, 1934, *Steyermark* 15235 (M).

KANSAS BARBER co.: 6 mi. w of Hardtner, July 5, 1929, *Rydberg & Imler* 629 (M). BUTLER co. July, 1904, *Jones* s. n. (M). COMANCHE co. plains, sandy soil, w. of Protection, July 23, 1933, *Palmer* 41850 (M, NY). ELLIS co. prairie land, June 22, 1882, *Deane*, s. n. (G); sandy soil, July 17, 1895, *Hitchcock* 292 (G, M, N, RM, NY); low waste places, Hays, June 21, 1935, *Bondy* 110 (M, RM); w. of Hays, July 13, 1935, *Osterhout* 8244 (RM). GRAHAM co. Bogue, 1929, *Imler* 23 (M). GRANT co. Ulysses, alt. 3000 ft, June 27, 1893, *Thompson* 61 (G, M, N, UC, NY). HAMILTON co. Syracuse, July 14, 1878, *Popenoe* s. n. (PA); Syracuse, Sept. 14, 1912, *Rose & Fitch* 17020 (N, NY). MEADE co. high ground near Crooked Creek, Meade, Aug. 15, 1890, *Smyth* 119 (N). MIAMI co. Paola, Aug. 14, 1885, *Oyster* 4548 (NY). OSBORNE co. pasture near S. Fork Solomon River, July 20, 1894, *Shear* 181 (G, M, N, RM, NY). PAWNEE co. Larned, June 27, 1891, *Doll* s. n. (M). ROOKS co.: Rockport, June 14, 1889, *Bartholomew* s. n. (M); Stockton, July 30, 1911, *Kellogg* s. n. (M). STEVENS co.: vicinity of Hugoton, Sept. 21, 1912, *Rose & Fitch* 17119 (N, NY). TREGO co. Wakeeney, July 8, 1892, *Reed* s. n. (N, NY); July 12, 1885, *Kellerman* s. n. (M, N).

COLORADO BENT co.: Rule Creek, Aug. 18, 1909, *Osterhout* 4101 (RM, NY, P). EL PASO co.: Palmer Lake region, July 11, 1937, *Schwartz & Talley* s. n. (M).

NEBRASKA WEBSTER CO. Red Cloud, June 12, 1903, *Bates s. n.* (G) FRANKLIN CO. Bloomington, June 17, 1935, *Hapeman s. n.* (UC).

NEW MEXICO UNION CO. Crossing of the Cimarron River, Aug. 28, 1847, *Fendler 454* (M).

OKLAHOMA BRYAN CO. dry gravelly soil, Caddo, *Sheldon 47* (N). CADDO CO. sandy soil, 2 mi. e. of Hydro, Aug. 11, 1927, *Stratton 371* (M); sandy dry slopes, Cement, May 9, 1936, *Demaree 12542* (NY). COMANCHE CO. grassy mountain side, Cache, June 25, 1913, *Stevens 1326* (G); in sandy soil, near mountain top, Cache, June 25, 1913, *Stevens 1341D* (G), n. of West Cache, alt. 1600 ft. May 24, 1923, *Rose 22* (G); dry open ground, granite areas, Wichita National Forest, Wichita Mts. June 27, 1933, *Palmer 41991* (M); Fort Sill, May 20, 1916, *Clemens, Mrs. J. 11847a* (G, M, RM); granite hillsides, Wichita National Forest, Medicine Park, July 19, 1936, *Demaree 13036* (NY), Fort Sill, June 22, 1916, *Stevens 11847* (N). COTTON CO. near Randlett, May 25, 1916, *Pierce s. n.* (N). CUSTER CO. sandy foothills, Clinton, May 3, 1936, *Demaree 12465* (NY). ELLIS CO. in sandy creek valley, Shattuck, May 20, 1914, *Stevens 3118* (G), breaks of Canadian River at Pack Saddle Bridge, May 26, 1935, *Goodman 2588* (G, M, RM, NY). GARFIELD CO. June 27, 1900, *White s. n.* (RM). JACKSON CO. hills of granite boulders, near Altus, May 1, 1925, *Small & Wherry 12197* (NY). JOHNSTON CO. rocky open ground, granite outcrops, Devils Den near Tishomingo, May 27, 1931, *Palmer 39420* (GM). KINGFISHER CO. sandy valley w. of Dover, June 27, 1913, *Stevens 1358* (G). MURRAY CO. moist bottoms, Prices Falls, Arbuckle Mts., June 3, 1936, *Demaree 12886* (NY); Platt National Park, Sulphur, May 6, 1935, *Merrill 305* (NY), rocky flats, Arbuckle Mts., Turner Falls, May 8, 1936, *Demaree 12485* (NY); Platt National Park, June 3, 1935, *Merrill 566* (NY); Bromide Mt., Platt National Park, near Sulphur, April 25, 1935, *Merrill 187* (M); Arbuckle Mts., near Davis, June 21, 1917, *Emig 769* (G, M); Cusher, Arbuckle Mts., May 12, 1916, *Emig 585* (M, N). PAYNE CO. dry, rocky, sandy soil, 4 mi. s. w. of Drumright, May 23, 1926, *Stratton 86* (M). ROGERS CO. Catoosa, May 8, 1895, *Bush 1132* (M, NY). WOODS CO. in sandy reverted field, Alva, June 7, 1914, *Stevens 3178* (G, M, N), in sandy pasture, Flagg, May 27, 1914, *Stevens 3070* (G, M, N, NY), sandy slope, Saratoga, May 21, 1913, *Stevens 537* (G, M, N, P), Cimarron River, July 14, 1897, *White 69* (M).

MEXICO CHIHUAHUA sand hills, near Paso del Norte, April 9, 1885, *Pringle 225* (G), Cerro Tirraja, vicinity of San Jose, alt. 2400 ft., July 14, 1930, *Bartlett 10344* (N).

COAHUILA on the desert, 25 mi. s. w. of Sabinas, June 19, 1936, *Wynd & Mueller 211* (G, M, N, NY).

NUEVO LEON. Monterrey, April 26, 1939, *Frye and Frye 2469* (NY, WS); Decombres near Monterrey, June 10, 1911, *Arsene s. n.* (NY).

TAMAULIPAS Washington Beach, June 1923, *Runyon 464* (M, G, N, NY); 14 km. s. of Nuevo Laredo, on road to Monterrey, April 17, 1939, *Frye and Frye 2394* (WS, G, NY).

2. *Gaillardia Amblyodon* Gay in Ann. Sci. Nat. Ser. 2, 12: 62. 1839.

A caulescent annual; stem 3-5 dm. high, simple or branched above, with crisp moniliform hairs; leaves 3-7 cm. long, oblong-lanceolate, sessile and slightly auricled at the base, with short moniliform hairs; peduncle 3-10 cm. long; involucre bracts 1-1.5 cm. long, lanceolate, the base chartaceous and appressed, the tip herbaceous; setae of the receptacle subulate, 5-6 mm. long; ray flowers neutral, ligules 1.5-2 cm. long, dark-red to brownish-purple, trifid; disk 1-1.5 cm. broad; disk corollas cylindro-campanulate, the triangular lobes ciliate with moniliform hairs, style with long hispidulous appendages; achenes about 3 mm. long, densely villous at the base; pappus lanceolate produced into an awn about half as long as the body.

Type: Texas. Drummond, 189

This species differs from *G. pulchella* in the character of the involucre, pubescence, and ray flower color. From the limited number of collections, it apparently does not occur very frequently, although, in the field, collectors may have failed to recognize it as separate from *G. pulchella*.

DISTRIBUTION: Sandy prairies of Texas, inland from Galveston. (See Fig. 5) Specimens examined. TEXAS BASTROP CO. McDade, July 14, 1921, Fisher 75 (N). BEXAR CO. sand, Pleasanton Rd., 20 mi. s. of San Antonio, May 27, 1932, Mels 627 (NY) CALDWELL CO.: on State Route 29, near Luling, June 14, 1933, Drushel 8334 (M). GOLIAD CO.: sandy prairie, Goliad, May 25, 1926, Williams 22 (PA). MILAM CO.: sandy soil, 3 mi e. of Milano, Aug 1, 1929, Wolff 1034 (N). TRAVIS CO.: Austin, May, 1931, *Thorp s. n* (NY). WALLER CO.: sandy prairie, Hempstead, May 30, 1872, Hall 350 (NY, N, M, G, P) COUNTY NOT DETERMINED: Drummond 189, type (NY); Hickley, 1889, *Thuron s n* (N) Walden, July 9, 1889, Munson and Hopkins (N); Cypress City, Aug. 1877, Ball 755 (G, M).

3. *Gaillardia mexicana* A. Gray in Proc. Am. Acad. 19: 34. 1883. S. Wats. in Proc. Am. Acad. 18: 109. 1882, hyponym.

Gaillardia pulchella var. *capitulalis minoribus* A. Gray, Pl. Wright. 1. 120 1852.

A caulescent perennial; stems 3-5 dm. high, branched from the base; stems often with a reddish tinge and pubescent with short moniliform hairs; rosette leaves 6-7 cm. long, oblanceolate with long petioles, the margins coarsely lobed or entire; cauline leaves 2.5-3.5 cm. long, oblong or ovate-lanceolate, sessile, the margins entire or toothed; peduncle 15-20 cm. long; involucre bracts 7-10 mm. long, lanceolate-acuminate, herbaceous, pubescent with short moniliform hairs; setae of

the receptacle subulate, 3-4 mm. long; ray flowers yellowish-red or purple, 7-9 mm. long, 3-lobed; disk 12-15 mm. broad, corollas cylindro-campanulate with triangular lobes, the lobes pubescent with brownish-purple moniliform hairs; pappus scales ovate-lanceolate about 5 mm. long including the awn; achenes 2.5 mm. long, hairy from the base only, the hairs about as long as the body of the achene.

Type: in the Sierra Madre, south of Saltillo, Mexico, Palmer, 725.

This is closely related to *G. pulchella*, but differs in the broader lobes of the disk corollas, the non-ciliate involucre bracts and the smaller heads.

DISTRIBUTION: From Del Rio, Texas southward to central San Luis Potosi in Mexico. (See Fig. 6.)

Specimens examined. TEXAS: EL PASO CO.: Devils River, n. of Del Rio, alt. 1000 ft. April 25, 1903, *Pilsbry s.n.* (PA); Del Rio, April 18, 1930, *Jones, M. E. 25905* (M, P), n. of Del Rio, May 31, 1931, *Jones 28005* (M, RM, P, UC).

MEXICO. CHIHUAHUA: Colonia Garcia and Pratts Ranch below Pacheco, Aug. 22-24, 1899, *Nelson, E. W. 6274* (G, N).

COAHUILA: highlands, Saltillo, June 21, 1848, *Gregg 113* (G, M); canyon and elevated portion of Sierra Madre, 12-14 leagues s. of Saltillo, July 25-Aug. 1, 1880, *Palmer 725* (G, PA, N type), Saltillo, alt. 1650 m., March, 1908, *Arsene 3406* (M, N); grassy flat, Valle de los Guajes (e. of the Sierra de Encantada) 18 km. s. of Rancho Buena Vista, Sept. 3, 1941, *Stewart 1342* (G); open meadow with oak and juniper back of cliffs, w. side of Potrero de la Mula, ca. 20 km. n.w. of Ocampo above the escarpment near the mines, Sept. 18, 1941, *Johnston 9256* (G).

NUEVO LEON: Sierra Madre Mts., Monterrey, July 29, 1933, *Mueller and Mueller 246* (G); scattered in open wood, Sierra Madre Oriental, w. side of Divide between San Francisco Canyon and Publillo, 15 mi. s.w. of Pueblo Galeana, alt. 8500 ft., May 14, 1934, *Mueller and Mueller 398* (G); in openings and openly wooded ridges in pine-oak wood, Canyon Marisio Arriba, Rancho Las Adjuntas, Municipio de Villa Santiago, June 24, 1935, *Mueller 2050* (G); Monterrey, Sept. 18, 1937, *Kenoyer s.n.* (M); Hacienda Vista Hermosa, 35 mi. s. of Monterrey, alt. 2500 ft., *White 1634* (G); under pines, summit near Escondido, alt. 6200 ft., Aug. 26, 1940, *Shreve and Tinkham 9703* (G); in mountain valley, 22 km. n.w. of Fraila, alt. 2500 m., July 17, 1941, *Stanford, Retherford & Northcraft 467* (G).

SAN LUIS POTOSI: San Miguelito Mts., Sept., 1876, *Schaffner, 259* (G, N, NY); dry calcareous banks, San Jose Pass, July 12, 1890, *Pringle 3559* (G); limestone ledges, Villar, July 14, 1893, *Pringle 5368* (N); Sierra Tablon, June, 1911, *Purpus 5140* (G, M, N, UC, NY).

3a. *Gaillardia mexicana* var. *trifida* S. Biddulph var. nov.¹

Perennial; stem 3-5 dm. high, branched from the base; leaves mostly basal to one-third of the way up the stem, entire or rarely somewhat toothed, oblanceolate, acute, petioled, punctate and pubescent with short moniliform hairs; heads 4.5-5 cm. broad and long pedunculate; involucre bracts lanceolate, pubescent; receptacle with stout setae slightly longer than the bodies of the achenes; ray flowers neutral; ligules purplish, tipped with yellow and with strong purple veins, three-cleft almost to the base, slender, ca. 2 cm. long; disk corollas 6 mm. long, lobes deltoid, deep purple and covered with moniliform hairs; achenes 2.5 mm. long with hairs from the base of the body, pappus scales lanceolate, the body 2 mm. long, the awns 3 mm. long.

Type: abundant in dry silty soils of openings in oak chaparral, Hacienda Cieneguillas on Cerro Potosi, alt. 8000 ft., Aug. 11, 1938, Mex. Biol. Exped. of Students of the Univ. of Illinois, 988. (G)

Though this plant has not been extensively collected, it is so much different from the species with which it occurs that it seems worthy of varietal rank.

DISTRIBUTION: Known only from two stations in Nuevo Leon and from the Lerios Mts. in Coahuila. (See Fig. 6.)

Specimens examined: MEXICO NUEVO LEON: colonies on plain, Arroyo Hondo, Hacienda de San Jose de Raices, Municipio de Galeana, July 31, 1935, *Mueller*, C. H. 2306 (G); abundant in dry silty soil of openings in oak chaparral, Hacienda Cieneguillas on Cerro Potosi, alt. 8000 ft., Aug. 11, 1938, *Mex Biol Exped. of Students of the Univ of Ill.* 988 (G type, NY).

COAHUILA: Lerios Mts. s. of Saltillo, alt. 10,000 ft, July 1880, *Palmer* 726 (G. N).

4. *Gaillardia neomexicana* A. Nels. in Univ. Wyo. Publ. Bot. 1: 135. 1926.

Biennial or sometimes persisting as a short-lived perennial with branching crown; stems 3-6 dm. high, crown leaves 7-9 cm. long with long petioles; stem leaves 3-6 cm. long, usually sessile or sometimes short petioled, oblong-lanceolate to oblong, the margins entire or toothed or lobed, a few short, scattered moniliform hairs on both surfaces; peduncles 12-20 cm. long; involucre bracts acute, lance-linear, 15-30

¹*Gaillardia mexicana* var. *trifida* var. nov., perennis; folius plerumque radicalibus, integris, oblanceolatus; in petiolum attenuatis, capitulis longo-pedunculatis; ligulis purpureis apice flavis, ca. 2 cm longis, angustis; corollis disci purpureis; paleis pappi lanceolatis; aliter similis speciei.

mm. long, ciliate on the margins and hairy on the back, reflexed at anthesis; setae of the receptacle subulate and equaling the body of the achene; ray flowers 5-9, neutral, trifid, about 2 cm. long, yellow with purplish-red bases and prominent purplish-red veins; disk 15-20 mm. broad; disk corollas cylindro-campanulate, purplish-red by reason of the long moniliform hairs; pappus scales lanceolate and tapering into a long awn; achenes about 3 mm. long and covered with long hairs which extend beyond the body of the achene.

Type: Rito de los Frijoles, Sandoval Co., New Mexico, Aug., 1910, W. W. Robbins, 8103

This is perhaps only the westward extension of *G. pulchella*, but it tends toward a perennial habit and differs in the color of the rays and the hairiness of the achenes.

DISTRIBUTION: Drainage of Rio Grande, Pecos, and Gila Rivers. Southeastern Arizona, southern New Mexico, scattered in Northern New Mexico, southern Texas, and Coahuila, Mexico (See Fig 5)

Specimens examined NEW MEXICO BERNALILLO CO. Albuquerque Mesa, May 19, 1931, Castetter 1235 (RM). CATRON CO. Gila Springs in the Mogollon Mts., Aug. 28, 1903, Metcalfe s.n. (N); 5 mi n of Reserve, July 10, 1906, Wootton s.n. (N). CHAVES CO. Arroyo Ranch near Roswell, Sept. 1-4, 1903, Griffiths 5757 (N, M). DONA ANA CO. Organ Mts, Aug, 1881, Vasey s.n. (G, N); Organ Mts., Aug 14, 1895, Wootton s.n. (N, RM, UC, P); Organ Mts., alt. 5000 ft, July 14, 1897, Wootton 138 (N, M, G, RM, UC, NY), sandy rocky hills, Strauss, 1912, Stearns s.n. (M); between Strauss and Anapra, July, 1912, Stearns 399 (N); New Mexico Range Reserve, Oct 12, 1912, Wootton s.n. (N); Jornada Range Reserve, 25 mi. n. of Las Cruces, Aug. 17, 1929, Ellison 842 (UC). EDDY CO. floor of canyon, Guadalupe Mts near three forks of Rocky Arroyo, April 30, 1932, Wilkens 1716 (PA). GRANT CO. Coppermines, July, 1851, Thurber 223 (G), Bear Mts, Aug. 18, 1880, Greene 12619 (M, PA, P); open, grassy canyons, Burro Mts., Sept., 1880, Rusby 187 (NY, M); Apache Tejo Aug 16, 1895, Mulford 941a (NY, M); Fort Bayard, July 31, 1895, Mulford, 571 (M); Gila, July 12, 1900, Wootton s.n. (N); Gila River bottom near Cliff, alt. ca. 4500 ft, June 15, 1903, Metcalfe 142 (N, M, G, NY, RM, UC, P); sandy canyon bottom, n of Bear Creek, 4 mi e of Gila, May 24, 1935, Maguire 11655 (US); sandy gravelly loam, dry canyon bottom, 3 mi n e of Shelley Ranch, Mogollon Canyon, June 11, 1935, Maguire, Richards & Moeller 11949 (US). HIDALGO CO. Deer Creek, June 20, 1906, Wootton s.n. (N), Animas, April 29, 1930, Cory 3635 (G). QUAY CO. clay and sandy soils, Nara Visa, Sept 6, 1910, Fisher 66 (N) SANDOVAL CO. Rito de los Frijoles, Aug., 1910, Robbins 8103 (PM type coll.); Rito de los Frijoles, Aug 1912, Cockerell 14 (N). SAN MIGUEL CO. Las Lajunitas, Condado de Santa Fe, alt. 6000 ft., 1879, Brandegee s.n. (UC). SIERRA CO. Nutt Mt., alt. 4600 ft, May 11, 1905, Metcalfe 1583 (M). SOCORRO CO. 1 mi. s.e. of San Marcial, foot of Lava Mesa, July 9, 1938, Benson 374 (UC).

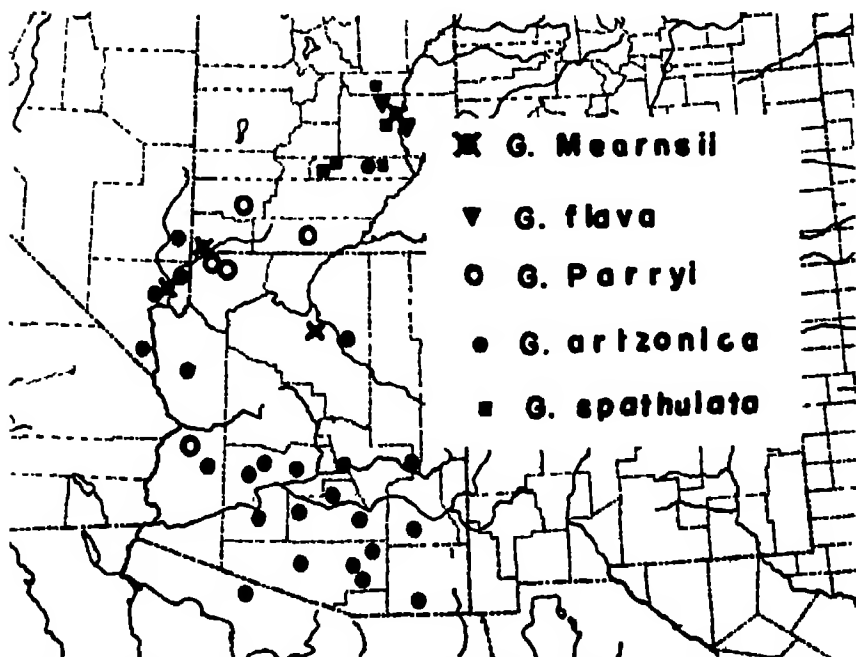
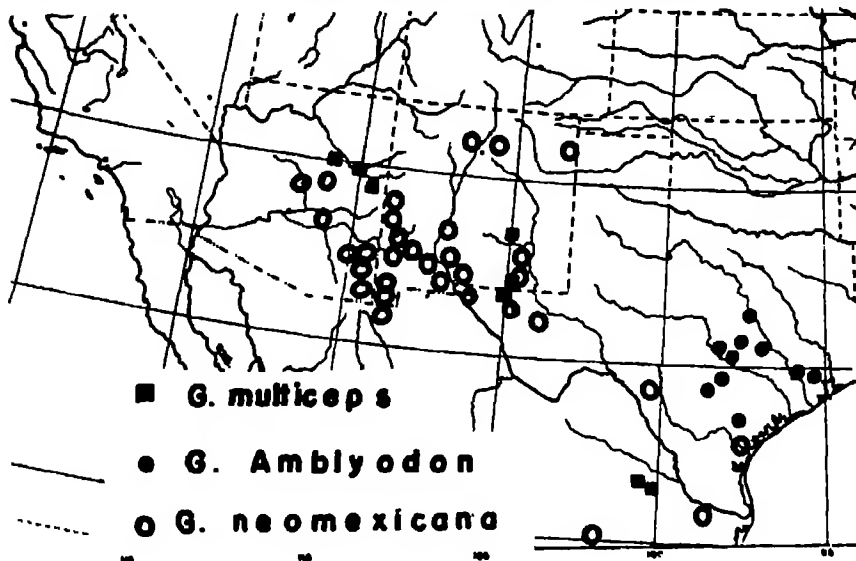


Fig. 5. Collection stations for some of the species of the Section EUGALLARDEA

ARIZONA. COCHISE CO.: Bowie, Sept. 21, 1884, *Jones* 4327 (N, PA, NY, RM, P); Joe Smiths Ranch, detrital plain, Chiricahua Mts., alt. 5500 ft., Aug. 30, 1907, *Blumer* 2097 (G, N, NY); sandy, gravelly w. slopes, 4 mi. n.e. of Dragoon, May 6, 1935, *Maguire* 11184 (US). GILA CO.: Rye, Tonto Basin, May 29, 1890, *Jones* s.n. (P). GRAHAM CO.: mesa openings among mesquite, Camp Grant, April 2, 1867, *Palmer* 136 (M); Tanque, alt. 1200 m., May 8, 1924, *Eggleston* 19870 (N). PIMA CO.: Santa Cruz Creek near Tucson, April, 1880, *Lemmon* s.n. (UC); Santa Catalina Mts., May, 1881, *Lemmon* s.n. (UC). PINAL CO.: Mescal Mts., May 24, 1890, *Jones* s.n. (P). YAVAPAI CO.: Cottonwood, alt. 4300 ft., July, 1874, *Rothrock* 345 (G, PA).

TEXAS. CULBERSON CO.: gypsaceous and somewhat saline sand along creek ca. 17 mi. e. of Salt Flats, Aug. 14, 1942, *Waterfall* 3808 (G, priv. herb. of U T. Waterfall). EL PASO CO.: El Paso, April 16, 1884, *Jones* s.n. (P). KINNEY CO.: Fort Clark, April 3, 1893, *Mearns* 1404 (N). NUECES CO.: Corpus Christi at causeway, March 16, 1929, *Tharp* 5630 (N). REEVES CO.: Toyah Creek, April 21, 1902, *Tracy & Earle* 86 (G, N, M, NY).

MEXICO. COAHUILA: Cerros Bravos, Sept. 20, 1848, *Gregg* 465 (G, M); Rio Grande Valley, alt. 700 ft., April 19, 1900, *Pringle* 8311 (G, N, M, PA, UC, RM); Sabinas, May 21, 1902, *Nelson*, *E W* 6777 (N, NY).

NUEVO LEON: Monterrey, June 22, 1848, *Gregg* 160 (G, M); fields near Monterrey, alt. 1600 ft., April 7, 1906, *Pringle* 13745 (G, N); Monterrey, alt. 540 m., May, 1911, *Arsene & Abbon* 6186 (N, G, M).

SONORA: between San Pedro and Fronteras, Sept. 20-24, 1890, *Hartman* 898 (G); canyon of Bonita Creek, near Mexican boundary, Sept. 1, 1892, *Mearns* 766 (N).

TAMAULIPAS: e of Reynosa, June 4, 1847, *Gregg* 895 (G, M)

5. *Gaillardia aristata* Pursh, Fl. Am. Sept. 2: 573. 1814

Virgilia grandiflora Nutt. Fraser, Cat. 1813

Gaillardia bicolor Sims Bot. Mag. t 1602. 1813

Polatherus scaber Raf. in Am Mo Mag 2 268. 1818.

Gaillardia bicolor aristata Nutt., Gen 2 175. 1818.

Gaillardia rustica Cass. Dict. Sci. Nat 18 20. 1820.

Gaillardia perennis Loisel. Herb. Gen. Amat. 5. t 328. 1821

Gaillardia bicolor Hook. Fl. Bor. Am 1 315. 1834

Gaillardia lanceolata DC., Prodr 5: 652, in part 1836.

Gaillardia Roesei Regel, Gartenflora 24 289. 1875

Gaillardia Richardsonii Hort. ex Kew Bull. 3 41. 1889.

Gaillardia aristata foliosa Lunell in Am. Midl. Nat. 2: 122. 1911.

Gaillardia bracteosa Standley in Smiths. Misc. Coll. 56: 2. 1912.

Gaillardia Hallii Rydb. in N. Am. Fl. 34: 135. 1915

A caulescent herb, with a perennial root; stem 3-6 dm. high, striate and hirsute with moniliform hairs; leaves 5-20 cm. long, the blades of the lower decurrent on the petiole, oblanceolate to linear-lanceolate, sessile or with short petioles, entire to coarsely toothed or lobed; peduncles 5-20 cm. long; involucre bracts 1-2 cm. long, lanceolate, acuminate

ate, herbaceous, ciliate on the margins and very hairy on the backs; setae of the receptacle subulate, about twice as long as the achenes; ray flowers neutral; ligules 1-2.5 cm. long, yellow or yellow with purplish-red bases; disk 1.5 to 3 cm. broad; disk corollas cylindro-campanulate, yellow below and purple above or occasionally all yellow, lobes triangular-acuminate, ciliate with moniliform hairs; achenes about 4 mm. long, covered with silky white or brownish hairs; pappus 6-7 mm. long, abruptly acuminate into an awn twice as long as the body.

Type: Lewis and Clarke, Rocky Mts., dry hills. July 7, 1806.

European gardeners apparently thought of this species only as a perennial form of *G. pulchella*. It will be noted that the two ranges (of *G. aristata* and *G. pulchella*) overlap in central Colorado. Specimens of *G. aristata* collected in Wyoming and Colorado are much larger than those collected elsewhere. (Tetraploid?).

DISTRIBUTION. On the eastern face of the Rocky Mts. from southern Colorado northward through the Dakotas, Saskatchewan and Alberta to Edmonton, southward to The Dalles in Oregon and through central Idaho to the Uintah Mts. in Utah (See Fig 4.)

Specimens examined: IDAHO. BONNER CO Clarks Fork valley near Weeksville, alt. 650 m., Aug 22, 1895, *Leiberg 1568* (G, M, N, UC, RM, NY); Bonners Ferry, Aug. 30, 1926, *Epling 10443* (M); Snowy Top Mt., Upper Priest River, alt. 6000 ft., July 4, 1925, *Anderson 7951* (M) CLARK CO. Beaver Canyon, Aug. 10, 1892, Mulford s.n. (G, M, NY). FREMONT CO open hillsides at Red Rock Pass w. of Henrys Lake, alt. 8100 ft., July 28, 1939, *Cronquist 1812* (US). IDAHO CO. sandy exposed north bank between boulders, alt. 1400 ft., Middle Fork of the Clearwater River at Three Devils Creek, July 12, 1937, *Constance 1977* (UC, WS, US) KOOTENAI CO Coeur d'Alene, July, 1912, *Rust 129* (N); Lake Coeur d'Alene, Aug. 3-4, 1926, *Epling & Hauck 10034* (N). LATAH CO: Thatuna Hills (Moscow Mts.), July 6, 1926, *Epling & Hauck 9216* (M); Moscow, June 16, 1900, *Abrams 712* (UC, RM, NY); 3 mi. s of Viola, June 26, 1892, *Sandberg, MacDougal & Heller 497* (G, N, PA, NY); common on grassy hillsides, Moscow, June 17, 1894, *Henderson s.n.* (N). NEZ PERCE CO: near Lewiston, alt. 1500-2000 ft., June 10, 1896, *Heller & Heller 3218* (M, N, UC, NY); common in sandy soil, Upper Ferry, Clearwater River, May 30, 1892, *Sandberg, MacDougal & Heller 273* (G, M, N, PA, WS, NY)

OREGON DOUGLAS CO Camas Prairie, July, 1902, *Griffiths & Hunter 78* (N, NY). GILLIAM CO.: Sept., 1902, *Baker 7* (M); Arlington, Sept., 1902, *Baker s.n.* (M) HOOD RIVER CO: common in open or subwooded prairies, along Blossomer, June 15, 1924, *Henderson 706 of 1924* (G); Barlow Gate, 10 mi. s.e. of Mt. Hood, July 24, 1894, *Lloyd s.n.* (NY); open pine woods and prairies, May 13, 1924, *Henderson 373 of 1924* (M); Badger Creek, Mt. Hood, July 25, 1894, *Lloyd s.n.* (NY); along Hood River, July 8, 1927, *Suksdorf 3383* (WS). MULTNOMAH CO:

Bonneville, Aug 6, 1895, *Canby s.n.* (G) SHERMAN CO.: dry ground, DeMoss Springs, June 29, 1921, *Peck 9955* (NY); hills of the John Day River, 2 mi. above its mouth, May 25, 1925, *Henderson 269* (G). UMATILLA CO.: Dry Creek, alt. 3600 ft., July 8, 1907, *Jardine 77* (N); Weston, 1897, *Baker s.n.* (UC); Snake River sand bars, Umatilla Ferry, May 22, 1933, *Nelson & Nelson 622* (M, RM); Blue Mts.; June 20, 1932, *Wann 4702* (UC); Bingham Springs Station, Gibbon, alt. 530 m., June 28, 1916, *Eggleston 12829* (N); roadside near summit of Cabbage Hill, e of Pendleton, June 14, 1928, *Thompson 4753* (M, N, PA) WALLOWA CO.: Jim Creek, alt. 1425 ft., June 15, 1897, *Sheldon 8299* (G, M, N, UC, NY); Snake River at mouth of Cache Creek, alt. 1250 ft., May 28, 1897, *Sheldon 8203* (N, NY). WASCO CO.: Dalles of the Columbia, spring of 1855, *Suckley s.n.* (G); Dalles, Aug., 1873, *Edwards s.n.* (NY); Hood River, Aug. 8, 1888, *Drake & Dickson s.n.* (M); Dalles of the Columbia River, Aug. 2, 1880, *Engelmann s.n.* (M); dry ground at the Dalles, July 1, 1927, *Thompson 2832* (PA), Wapinitia, June 9, 1922, *Gorman 5763* (WS), prairies, Hood River, June 25, 1882, *Henderson 527* (M, NY); dry roadside near Rowena, May 27, 1928, *Thompson 4357* (M, N); in cultivated fields, banks of the Columbia River between Mosier and Rowena, July 28-30, 1922, *Abrams 9484* (M, RM); dry slope, 5 mi w of The Dalles, June 28, 1921, *Peck 9924* (NY); 15 mi w of Maupin, alt. ca. 2000 ft., June 20, 1939, *Hutchcock & Martin 4803* (WS, NY, US) COUNTY NOT KNOWN ———, 1871, *Hall 279* (G, M, NY type coll. of *G. Hall* Rydb.)

WASHINGTON BENTON CO.: White Bluffs, May 10, 1911, *Beattie 3959* (WS) CHELAN CO.: Wenatchee, Aug. 6, 1896, *Whited 238* (N); sandy soil, edge of Columbia River, Aug. 10, 1938, *Purser 7781* (M); Wenatchee, June-July, 1896, *Whited s.n.* (WS); rocky banks of the Columbia River at Entiat, May 16, 1931, *Thompson 6361* (G, M); Tumwater, alt. 1600 ft., Aug. 18, 1921, *Otis 1103* (M, N). COLUMBIA CO.: Lewis Peak, Blue Mts., May 27-29, 1923, *Brode 11* (WS); open hillsides, Robinson Fork of Touchet River, May 31, 1925, *St John, Davidson & Scheibe 6991* (UC, WS) DOUGLASS CO.: between Coulee City and Waterville, May 27, 1896, *Spillman s.n.* (WS); Grand Coulee of the Columbia River near the Dry Falls, alt. 2000 ft., June 15, 1929, *Benson 1597* (M) FERRY CO.: Republic, July 2, 1903, *Beattie & Chapman 2257* (WS); Republic, alt. 730 m., July 18, 1916, *Eggleston 13109* (N) FRANKLIN CO.: Pasco, May 25, 1896, *Hudshaw 12* (WS); GARFIELD CO.: sandy river bank, Ilia, Oct. 23, 1927, *St John, English, Jones & Palmer 9235* (WS) GRANT CO.: sagebrush slopes, in Grand Coulee near Soap Lake, June 16, 1935, *Thompson 11647* (PA, NY). KITTITAS CO.: Ellensburg, June 16, 1897, *Whited 500* (N); sagebrush slopes, s. of Ellensburg, June 20, 1933, *Thompson 9095* (M, NY); Rock Island, sand dunes along Columbia River, alt. 185 m., July 12, 1893, *Sandberg & Leiber 438* (G, M, N, PA, UC, WS, NY); on sand, bottomland at Bingen, Sept. 14, 1898, *Suksdorf 13043* (WS); White Salmon, 1878, *Suksdorf 191* (G); on dry ground near the Columbia River, June 8, 1890, *Suksdorf 979* (G, M, N, UC, WS, NY). LINCOLN CO.: Sprague, June 11, 1918, *Taylor 375* (WS). OKANOGAN CO.: dry ground, near Omak, May 26, 1931, *Fiker 57* (WS). PEND OREILLE CO.: Newport Trail, Kaniksu Forest, T 57N, R 5W, *Witham 72* (WS); dry places in open Sullivan Lake, Metaline Falls, July 28, 1923, *Lackey s.n.* (WS). SPOKANE CO.: Latah Creek, June, 1889, *Suksdorf 12975*

(WS); Spokane Falls, Sept. 25, 1880, *Watson* 223 (G); bare, dry rocky soil, ca. 20 mi. n. of Spokane, May 27, 1936, *Meyer* 394 (WS); Clarks Springs, June 21, 1903, *Beattie & Chapman* 2001 (WS); Newman Lake, July 10, 1912, *Turesson* s. n. (RM); in dry open place along road, s. e. of Chattaroy, July 10, 1923, *Lackey* s. n. (WS); Clarks Springs, June 24, 1902, *Kreager* 26 (G, N, WS, NY, US). STEVENS CO.: 1½ mi. n. of mouth of Spokane River, June 12, 1923, *Spiegelberg* 459 (RM); 7 mi. s. of Kettle Falls, May 28, 1923, *Spiegelberg* 458 (RM); 5 mi. n. w. of Colfax, May 29, 1923, *Spiegelberg* 456 (RM); along bank of Colville River valley, June 14, 1923, *Sprague* 598 (WS); Loon Lake, July 20, 1897, *Winston* s. n. (WS, NY); Lake Calispel, July 29, 1902, *Kreager* 326 (G, N, WS, NY). WHITMAN CO.: Wawawai, June 4, 1892, *Lake & Hull* 747 (WS); in low meadows, Pullman, July 20, 1895, *Hardwick* s. n. (N, NY, P); grassy hillside Rock Lake, June 30, 1927, *Weitman* 114 (WS); Union Flat, w. of Pullman, Oct. 9, 1920, *St. John* 6229 (UC, WS, NY); Pullman, July 3, 1893, *Piper* 1599 (M, N, UC, RM, WS, NY); Pullman, July 25, 1896, *Elmer* 106 (M, N, NY). YAKIMA CO.: gravelly banks, Yakima River, Kiona, July 18, 1902, *Cotton* 731 (WS); foot of Priest Rapids, July 16, 1903, *Cotton* 1386 (WS); sandy banks of Yakima River, Prosser, July 10, 1902, *Cotton* 626 (N, WS); Yakima region of Cascade Mts., June 1882, *Brandegee* 14173 (M, UC).

COLORADO. ARAPAHOE CO.: Denver, Aug. 20, 1884, *Letterman* s. n. (M). BOULDER CO.: infrequent, mesas, Boulder, alt. 5400 ft., June 26, 1920, *Hanson* C125 (M); Boulder, Aug., 1884, *Letterman* s. n. (M); plains and foothills near Boulder, alt. 5000-6000 ft., July, 1902, *Tweedy* 4883 (RM, NY); Eldora, July 28, 1906, *Robbins* 2368 (RM); Flagstaff Mt. near Boulder, July 19, 1906, *Robbins* 2139 (RM); Bear Canyon near Boulder, July 16, 1906, *Robbins* 1797 (RM); dry hills Ward, alt. 2790 m., July 20, 1921, *Bethel & Clokey* 4380 (M, N, PA, RM, WS). CLEAR-CREEK CO.: dry places in Clear Creek Canyon, Georgetown, alt. ca. 8500 ft., July-Sept., 1885, *Patterson* 70 (G, M, N, UC); gravelly soil of moraines, Empire, alt. 8500 ft., Aug. 5, 1874, *Engelmann* s. n. (M); dry slope near Idaho Springs, alt. 7700 ft., July 2, 1922, *Ehlers* s. n. (PA); Empire, alt. 8000 ft., July 1903, *Tweedy* 5862 (RM, NY); Georgetown, alt. 8300 ft., July 8, 1878, *Jones* 390 (WS, P). CUSTER CO.: West Cliff, Aug. 13, 1896, *Shear* 3312 (NY); base of Snowy Range, wet mountain valley, July 24, 1872, *Redfield* 160 (M); broken gravelly soil, 12 mi s. of West Cliff, alt. 8500 ft., July 7, 1935, *Penland* 1253 (N). EAGLE CO.: McCoya, June 14, 1903, *Osterhout* 2760 (RM, NY). EL PASO CO.: Palmer Lake, Aug. 28, 1915, *Dougan* s. n. (M); Palmer Lake Region, July 11, 1937, *Schwartz & Talley* s. n. (M). FREMONT CO.: Mt. Valley, July 1, 1873, *Brandegee* 764 (UC). GARFIELD CO.: Glenwood Springs, Aug. 18, 1906, *Osterhout* 3413 (G); Glenwood Springs, July 1, 1895, *Osterhout* 562 (RM, NY). GILPIN CO.: Rollinsville, alt. 8000 ft., July 8, 1913, *Overholts* s. n. (M); Tolland, Aug. 10, 1935, *Zobel* s. n. (M); Tolland, July 22, 1911, *Romale* 8908 (M). HUEFANO CO.: Veta Pass, July 15, 1896, *Shear* 3684 (NY). JEFFERSON CO.: moist woods, Bendemeer, July 14, 1921, *Clokey* 4387 (RM); Morrison, June 18, 1891, *Smith* s. n. (M); Golden, July 4, 1926, *Benke* 4312 (N). LARIMER CO.: along road through Middle St. Vrain Canyon, near Estes Park, June 24, 1929, *Mathias* 474 (M); Estes Park, alt. 8000 ft., Aug. 1933, *Burton* s. n. (M); Green Mt., Estes Park, alt. 8500 ft., Aug. 9, 1933,

Allen 151 (M); Estes Park, Aug. 11, 1910, *Johnston 219* (N, RM, NY); base of Palisade Mt., Aug. 11, 1927, *Woodson 1821* (M); Horsetooth Mt., July 16, 1895, *Osterhout 7369* (RM); 15 mi. up Poudre Canyon, Ft. Collins, Aug. 24, 1929, *Johnston 1304* (RM); hills, alt. 5500 ft. June 15, 1895, *Baker & Patterson 5418* (G, N, RM, NY); foothills w. of Ft. Collins, June 30, 1893, *Baker s. n.* (NY). LAS ANIMAS CO.: Stonewall, July 1912, *Beckwith 225* (NY);

MONTANA. CARBON CO.: Rock Creek Canyon, Custer National Forest, alt. 7000 ft., July 18, 1937, *Williams & Williams 3594* (G, M, NY); near Red Lodge, July 27, 1893, *Rose 51* (N). CASCADE CO.: Great Falls, June 6, 1886, *Anderson 246* (UC). FERGUS CO.: Denton, July 2, 1899, *Spragg s. n.* (US). FLATHEAD CO.: South Fork Fire Creek, July 14, 1937, *Bachert 7* (WS), Flathead Valley, May 22, 1897, *Blankinship s. n.* (RM); Kalispell, June 2, 1900, *Wilcox 272* (NY); mouth of White River, Flathead National Forest, alt. 4400 ft., Aug. 28, 1925, *Kirkwood 2260* (G); rocky bank along river, vicinity of Belton, alt. 946-980 m., Sept. 3-4, 1919, *Standley 18832* (N); Big Fork, July 27, 1908, *Butler 694* (NY); Big Fork, Flathead Lake and vicinity, July 15, 1908, *Clemens s. n.* (G, PA). GALLATIN CO.: s. e. of Bozeman, June 5, 1900, *Chestnut & Jones 240* (N); Spanish Basin, alt. 6500 ft., June 24, 1897, *Rydberg & Bessey 5191* (G, N, RM, NY); open fields, foothills of Bridger Range, July 4, 1928, *Swingle s. n.* (RM); dry field, road to Springhill, July 2, 1929, *Swingle s. n.* (RM); grassy mountain sides, Belt Range, alt. 6000 ft., near 16-Mile Creek, July 11, 1883, *Scribner 110* (PA); meadow, Manhattan, July 17, 1895, *Shear 3122* (NY); foothills, Bozeman, July 10, 1905, *Blankinship 265* (M, N, PA). GLACIER CO.: east entrance, Glacier National Park, July 14, 1934, *Osterhout 8128* (RM); Iceberg Lake, e. of Continental Divide, Aug. 26, 1921, *McKelvey s. n.* (G); open slope, vicinity of Glacier Park Station, alt. 1440-1530 m., July 5, 1919, *Standley 14939* (N); low meadow along Swiftcurrent Creek, below Lake McDermott, alt. ca. 1350 m., July 12, 1919, *Standley 15548* (N); rocky slope on switchbacks, along the trail from Many Glaciers Hotel to Swiftcurrent Pass, alt. 1500-2150 m., July 24, 1919, *Standley s. n.* (N); Kennedy Creek, July 15, 1901, *Weller s. n.* (N); plains, Midvale, July 18, 1903, *Umbach 424* (N, RM); exposed rocky slopes w. side of Garden Wall, ca. 4 mi. n. of Logan Pass, Glacier National Park, alt. 7600 ft., July 27, 1933, *Hitchcock 1947* (RM). JEFFERSON CO.: Boulder River, June 24, 1883, *Scribner 110* (PA, G). LEWIS AND CLARK CO.: Helena, 1888, *Kelsey s. n.* (N); 20 mi. n. of Helena, July 14, 1934, *Schreiber 1294* (UC); rocky slopes above creek, near Wolf Creek, July 9, 1930, *Palmer 36970* (M, N). MADISON CO.: on dry, stony slopes, Alaska Basin, Sept. 2, 1899, *Nelson & Nelson 6812* (M, RM). MISSOULA CO.: Missoula, July, 1916, *Pawson 19* (N); Lo-Lo Trail to LoLo Hot Springs, alt. 3200 ft., June 7, 1897, *Elrod 102* (M, N); dry hills n. of Missoula, May 11, 1935, *Rose 91b* (WS); Missoula, alt. 1000 m., June 11, 1901, *MacDougal 132* (N, NY). PARK CO.: Livingston, Aug. 1, 1901, *Scheuber s. n.* (N, NY). POWELL CO.: Deer Lodge, July 9, 1895, *Rydberg 2941* (NY); gravel, streamside, North Fork Blackfoot River, 15 mi. from Ovando, July 23, 1921, *Kirkwood 1333* (M, UC, G); Garrison, July 10, 1895, *Shear 5245* (N, NY). SILVER BOW CO.: near Butte, alt. 5500-6000 ft., Aug., 1893, *Moore s. n.* (M). SHERIDAN CO.: near Westby, June 27,

1927, *Larsen 52* (PA, RM, M). SWEET GRASS CO.: Wreck Creek, Greycliff, alt. 1200 m., June 15-19, 1912, *Eggleston 7962* (N).

WYOMING. ALBANY CO.: moist draws, near Centennial, July 3, 1934, *Ownbey 219* (WS); hills e. of Laramie, July 11, 1893, *Nelson 97* (N, RM); Sherman, alt. 8000 ft., July 29, 1884, *Letterman s.n.* (G, M); open sandy draws, Medicine Bow Mts., July 7, 1925, *Nelson 10567* (M, UC, RM, NY); Rock River, alt. 7000 ft., July 19, 1914, *MacBride 2822* (RM); granite hillside, Happy Jack Canyon, alt. 8500 ft., June 6, 1934, *Williams 1720* (M, RM, WS); Laramie Hills, July 7, 1894, *Nelson 417* (N, RM); gravelly hillside along Pole Creek, Laramie Hills, July 14, 1935, *Ownbey 879* (RM, WS); Laramie Plains, alt. 8500 ft., July 20, 1884, *Sheldon 63* (PA, NY); Sand Creek, July 29, 1929, *Greenman & Greenman 6047* (M); occasional on waste ground, campus, Laramie, alt. 7300 ft., July 22, 1929, *Goodman 763* (M); in moist valleys, Chug Creek, June 29, 1900, *Nelson 7313* (M, G, N, RM, NY); dry hillside at Tie City, near Pole Creek, Laramie Hills, alt. 8500 ft., July 10, 1935, *Rollins 988* (G, WS, NY); Bear Creek, ca. 2 mi. from Eagle Peak & 4 mi. from Laramie Peak, Aug. 22, 1899, *Schuchert s.n.* (N). BIG HORN CO.: rocky soil, slope near road, Dead Indian Hill, Shoshone National Forest, alt. 8500 ft., Aug. 24, 1924, *Pearson & Pearson 206* (RM); Big Horn Mts., alt. 7000 ft., July 7, 1896, *Moore & Moore s.n.* (RM); Spring Creek, 1893, *Nelson 73* (N). JOHNSON CO.: Buffalo, alt. 4000-5000 ft., Sept., 1900, *Tweedy 3136* (RM, WS, NY). LARAMIE CO.: Pole Creek, June 27, 1895, *Nelson 1326* (RM); Sybille Creek, July 8, 1894, *Nelson 344* (M, NY). LINCOLN CO.: La Barge, June 10, 1894, *Stevenson 184* (N). NATRONA CO.: dry canyons, Loomis Creek, near Beasemer, July 3, 1901, *Gooding 188* (RM); small brook and hillsides on Deer Creek, n. side of Laramie Mts., Aug. 17, 1899, *Schuchert s.n.* (N, NY). SHERIDAN CO.: roadside in the Big Horn Mts., Dayton-Kane road, alt. 10,000 ft., July 7, 1934, *Rollins 584* (WS, NY); Wolf Creek Canyon, July 12, 1896, *Nelson 2296* (RM); grassy flat, alt. 6000 ft., Piney Canyon, July 10, 1912, *Sharp 187* (RM); stony creek bottoms, near Big Horn Bridge, Little Goose Creek, June 21, 1909, *Willits 154* (RM); dry mesas, Big Horn, alt. 4000 ft., *Tweedy 2068* (NY). YELLOWSTONE NATIONAL PARK: along Madison River, July 22, 1911, *Smith s.n.* (PA); copses, near Mammoth Hot Springs, alt. 6000-7000 ft., July 9, 1894, *Burglehaus s.n.* (M).

SOUTH DAKOTA. CUSTER CO.: wooded slopes and valley, Jewel Cave, 18 mi. w. of Custer, July 9, 1927, *Hayward 2087* (RM); Black Hills, Rapid Creek, July 12, 1908, *Murdoch 13714* (NY); Bull Springs in the limestone district w. of Custer, alt. 6000-6500 ft., July 26, 1892, *Rydberg 813* (G, N, NY). HUGHES CO.: Pierre, July, 1883, *Holsinger s.n.* (N). LAWRENCE CO.: limestone, Spearfish Canyon near Savoy, alt. 5700 ft., June 21, 1910, *Murdoch 4125* (G); Spearfish Canyon, Black Hills, Aug. 8, 1921, *Over 13715* (RM); under aspens, e. of Dumont near Custer Peak, Aug. 13, 1924, *McIntosh 4153* (RM); Nasby, July, 1912, *Visher 1508* (NY). MEADE CO.: Black Hills, near Ft. Meade, June 26, 1887, *Forwood 226½* (N). PENNINGTON CO.: open grassland, Deerfield, Aug. 13, 1926, *Hayward 427* (NY); meadows, Castle Creek, Aug. 14, 1924, *Over 16240* (RM); open grassland, Reynolds Prairie, 3 mi. n. e. of Deerfield, July 23, 1927, *Hayward 2329* (RM); open grassland, 12 mi. w. of Deerfield, July 22, 1927, *Hayward 2290* (RM).

NORTH DAKOTA BARNES CO.: Valley City, July 15, 1897, *Perrine s n* (RM); prairie, Valley City, July 9, 1903, *Barber 151* (G). BENSON CO.: in dry soil, butte, Aug. 2, 1909, *Lunell s n* (N); prairies, Leeds, July 19-Aug. 10, 1898, *Lunell s n* (G). FDDY CO. between James River and Devils Lake, *Nicollet s n*. (G, NY). RAMSEY CO. sandy hill, Stump Lake, July 25, 1911, *Tufte 137* (RM). BOLETTE CO. Rolla, July 6, 1891, *Waldron s n* (NY), in woods, St. John, July 3, 1911, *Tufte 69* (RM). STARK CO. Dickinson, Aug. 18, 1908, *Holgate s n* (NY). TOWNER CO.: sandy hill, Snyder Lake, June 28, 1911, *Tufte 135* (RM). WILLIAMS CO. stony hillside, Gambetta, July 3, 1906, *Bell 420* (UC).

UTAH DAGGETT CO. in spruce and pine above Carter Creek on n. side of Uintah Mts, alt. 9000 ft., July 12, 1935, *Maguire & Richards 12383* (US). DUCHESNE CO. 4 mi s of Mt. Home, alt. 6200 ft., Aug. 28, 1936, *Stoddart & Passey s n* (US). UINTAH CO. rocky washes, Brush Creek Canyon, Uintah Mts, July 7, 1902, *Goodding 1268* (G, M, N, RM).

CANADA ALBERTA Sarcee Reserve, June 15-Aug. 15, 1905, *Goddard 423* (UC), along highway between Calgary and Waterton Lakes, near Pincher, Aug. 31, 1938, *Nelson & Nelson 3123* (UC, RM); Lake Louise, July 25, 1893, *Schaffer s n* (PA), dry soil prairies, Rosedale Coulee, alt. 2200-2500 ft., July 12, 1915, *Moodie 1066* (G, M); valley of the Bow River, Banff, Aug. 25, 1900, *Prince s n* (G), Bow River Valley, alt. 4500 ft., July 23, 1906, *Brown 671* (G, N, NY); Squaw Mt., Bow River, Banff, alt. 4200 ft., June 28, 1903, *Barber 99* (G); Henry House, Sept. 11, 1911, *Riley 4* (N, NY type coll. for *G. bracteosa* Standley); dry soil, prairies and hills, Rosedale Coulee, alt. 2200-2500 ft., July 15, 1915, *Moodie 1077* (N, NY), gravelly slopes of Tunnel interior, vicinity of Banff, alt. 4600 ft., July 6-Aug. 1899, *McCalla 2043* (N, NY); Athabasca Landing, July 28, 1914, *Hitchcock 12112* (N); grassland, roadside, Kananaskis, June 28, 1928, *Brinkman 3436* (N), Craigmyle District, alt. 2750 ft., June 30, 1921, *Brinkman 166* (NY), Red Deer, 1893, *Ireland s n* (Univ. Sask.); open prairie land, Ft. Saskatchewan, June 24, 1934, *Turner 12* (NY).

BRITISH COLUMBIA railroad bed, Grand Forks, June 26, 1896, *Braunon 284* (M), Williams Lake, June 18, 1921, *Fraser s n* (NY), Spencers Bridge, May 25, 1899, *Macoun s n* (NY), Carbonate "Draw," Selkirk and Rocky Mts, alt. 6200 ft., July 13, 1904, *Shaw 274* (G, M, N, RM, NY). Burgess Trail, vicinity of Field, alt. 5000-6000 ft., July 16, 1906, *Brown 508* (PA); in dry foothills, Skaha Lake, June 25, 1934, *Went 19* (UC); Oliver, June 3, 1934, *Murie 1191* (M); Lake Osoyoos, June 3, 1905, *Macoun 76980* (NY); Nicola, June 29, 1904, *Anderson s n* (WS).

SASKATCHEWAN. Saskatoon, June 17, 1927, *Camerson s n* (Univ. Sask.); roadside, Saskatoon, June 6, 1918, *Hanning s n* (Univ. Sask.); Regina, July, —, *Willing s n* (Univ. Sask.); Shellbrook, Aug. 19, 1910, *Willing s n* (Univ. Sask.); lake shore, Round Lake, Prince Albert, July 23, 1939, *Brown s n* (Univ. Sask.); open benchland, Cypress Hills, July 24, 1936, *Bolton 185* (Univ. Sask.); Saskatoon, July 3, 1916, *Tripp s n* (Univ. Sask.); prairie, Moosomin, July 16, 1938, *Bolton 151* (Univ. Sask.); moist ravine, Saskatchewan Landing, July 7, 1936, *Bolton 184* (Univ. Sask.); prairie, Saskatoon, June 20, 1929, *Arnason s n* (Univ.

Sask.); prairie, Langham, June 19, 1938, *Fraser s.n.* (Univ. Sask.); prairies, Moose Jaw, July 31, 1904, *Johnson 979* (NY); Bredenburg, July 4, 1906, *Macoun & Herriot 43130* (G); Cypress Hills, June 27, 1894, *Macoun 5058* (G, M); prairie, Lipton, July 23, 1911, *Clokey 1840* (M); prairie, Moose Jaw, June 22, 1907, *Cowles 11* (M, N).

6. *Gaillardia pinnatifida* Torr. in Ann. Lyc. N. Y. 2: 214. (1826) 1828.

G. gracilis A. Nels. in Bot. Gaz. 37: 276. 1904.

G. crassa Rydb. in N. Am. Fl. 34: 138. 1915.

G. globosa A. Nels. in Univ. Wyo. Publ. Bot. 1: 135. 1926.

Perennial; stem 3-4 dm. high, striate; leaves on lower half of plant only, lower leaves long petioled, upper sessile or short petioled, leaves pinnatifid, oblanceolate in outline, covered with moniliform hairs; peduncle 8-18 cm. long; setae of the receptacle stiff almost equaling the body of the achenes; rays neutral, trifid, yellow with a pinkish base, strongly purple veined; disk 2 cm. wide; disk corollas cylindro-campanulate, lobes triangular, yellow below and purple above by reason of the moniliform hairs; achenes 3 mm. long, covered with silky hairs; pappus scales lanceolate, with an awn one-third to one-half as long as the body. Type: On the Canadian, summer 1820, Edwin P. James, *s.n.*

This is a widespread and polymorphous species, for the extremes of which certain segregates have been proposed. For lack of evidence from distribution, these segregates have been reduced to synonymy in this treatment. Variations in the species include height of plant, pubescence, length of peduncle and to some degree ray color. The specimens upon which *G. crassa* was based are quite different from the general run of the species, being much more hairy and having only lobed leaves. Supporting evidence from distribution is not available, and, because this segregate is based only on vegetative characters which vary considerably in the species, it is not here recognized.

DISTRIBUTION: From Del Rio, Texas, to the Oklahoma Panhandle, westward across southern Colorado and Utah and southward to southern Durango in Mexico. (See Fig. 6.)

Specimens examined: ARIZONA. APACHE CO.: between the northern boundary of the Petrified Forest National Monument and Highway No. 66, May 27, 1935, *Nelson & Nelson 2148* (M, RM). COCHISE CO.: near Ft. Huachuca, 1891, *Wilcox s.n.* (N); Bisbee, Oct. 3, 1892, *Mearns 1009* (N); Ft. Huachuca, 1894, *Wilcox 102* (N); about Portal, Chiricahua National Forest, alt. 1600-1800 m., Sept. 26-29, 1914, *Eggleston 10993* (N); Silver Creek, Coronado Forest, alt. 1500 m., Sept. 29, 1917, *Eggleston 14237* (N); near base, Huachuca Mts., Sept. 3, 1928, *Harrison*

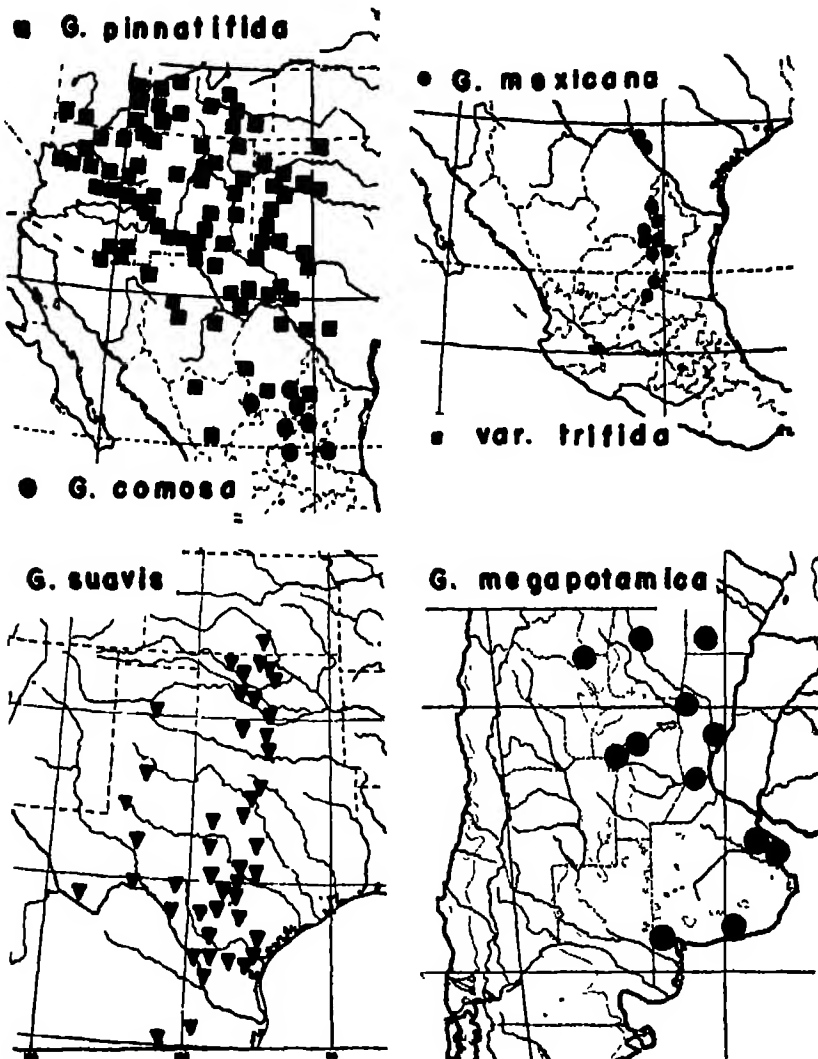


Fig. 6. Collection stations for *Gaillardia pinnatifida*, *G. mexicana*, *G. mexicana* var. *trifida*, and *G. megapotamica* (in Argentina).

& Kearney 5746 (N); grass range, 3 mi. e. of Hilltop, Chiricahua Mts., May 2, 1935, Maguire 11100 (US). COCONINO CO.: Grand Canyon, Feb.-May, 1885, Gray s.n. (G); Williams, June 28, 1892, Toumey 695a (N); Grand Canyon, July 12, 1892, Toumey 695 (N); vicinity of Flagstaff, alt. 7000 ft., June 16, 1898, MacDougal 126 (NY, G, N, UC); vicinity of Flagstaff, alt. 7000 ft., July 15, 1898,

MacDougal 291 (RM type for *G. globosa* A. Nels, NY); Flagstaff, May-Oct., 1898, *Purpus* s.n. (M); Flagstaff, May-Oct., 1900, *Purpus* 8044 (M, N, UC, P); Hance, Grand Canyon, June 9, 1901, *Ward* s.n. (N, NY); near Black Tank, June 2, 1901, *Ward* s.n. (N); near Flagstaff, alt. 1800 m., June 17, 1901, *Leiberg* 5519 (N); Ash Fork, June 16, 1920, *Jones* 158 (G, UC); rocky slopes, Flagstaff, alt. 7000 ft., July 14, 1922, *Hanson* 31 (M); 6 mi. w of Grand Canyon Bridge, Marble Canyon, alt. 3800 ft., June 3, 1933, *Benson* 132 (UC); under pines, 18 mi. n. e of Flagstaff, alt. 7500 ft., Aug. 7, 1934, *Muns* 13072 (UC, P); Flagstaff to Cameron, alt. 5900 ft., June 2, 1935, *Peebles & Fulton* 11795 (N). GILA CO. mesa near Rock & Rye Creeks, alt. 990-1050 m., May 18, 1935, *Collom* 476 (M, UC); mesa near Rock & Rye Creeks, alt. 990-1050 m., *Collom* 129 (M, N, NY), road banks between Tonto Basin & Payson, May 15, 1935, *Nelson & Nelson* 1965 (M, N, PA, UC, RM, WS, NY, G, US); GREENLEE CO.: San Francisco Mts., Sept. 2, 1889, *Knowlton* 171 (N). MOHAVE CO. Beaver Dam, 1877, *Palmer* 256 $\frac{1}{2}$ (NY, M); 6 mi. w. of Peach Springs, alt. 4300 ft., Sept. 20, 1935, *Kearney & Peebles* 12740 (NY, P). NAVAJO CO. Ft. Apache, May, 1893, *Hoyt* s.n. (NY); Kayenta, July 9-Aug. 24, 1919, *Clute* 125 (RM), near Holbrook, June 25, 1927, *Osterhout* s.n. (M); Winslow, May 26, 1934, *Peebles* 9593 (N), 12 mi. s of Snowflake, May 28, 1934, *Peebles & Fulton* 9632 (UC) PIMA CO. fenced arca, Santa Rita Forest Reserve, June 24-26, 1903, *Griffiths* 4775 (N) SANTA CRUZ CO. foothills of the Santa Rita Mts., May 12, 1884, *Pringle* s.n. (G, M, N, UC, NY, P type for *G. crassa*), Santa Rita Mts., Sept. 20-Oct. 4, 1902, *Griffiths & Thomber* 303 (N); Nogales, Aug. 28, 1927, *Peebles & Harrison* 4721 (N); Sonoita, May 23, 1928, *Peebles* 5334 (N), stony hills near Sonoita, April 20, 1935, *Nelson & Nelson* 1600 (RM). YAVAPAI CO. Ft. Whipple, 1863, *Cones* s.n. (M); open spots, Ft. Whipple, Aug. 1, 1865, *Cones & Palmer* 58 (M) Prescott, Aug. 8, 1926, *Peebles & Harrison & Kearney* 2675 (N); 20 mi. w. of Seligman, alt. 5000 ft., Aug. 3, 1938, *Peirson* 12470 (UC)

NEW MEXICO. BERNALILLO CO. along dry arroyos, sandy soil, near Albuquerque, June 21, 1926, *Palmer* 31178 (M). CATRON CO. dry soil near irrigation ditch, 2 mi. e. of Aragon on the Reserve-Magdalen Highway, July 2, 1927, *Goddard* 822 (UC). CHAVES CO. 20 mi. s. of Roswell, Aug. 9, 1900, *Earle & Earle* 569 (M, N, NY); Arroyo Ranch near Roswell, May 4-9, 1903, *Griffiths* 4279 (M, N) COLFAX CO. vicinity of Raton, alt. ca. 2,020 m., Aug. 18, 1916, *Standley* 13287 (N). DEBACA CO. sandy plains on the Ft. Sumner road, May 20, 1931, *Nelson* 11322a (RM). DONA ANA CO. Las Cruces, July, 1894, *Plank* s.n. (NY); on the mesa near Las Cruces, alt. 4100 ft., July 14, 1897, *Wootton* 142 (NY, M, N, UC, RM, P); Mesilla Valley, April 28, 1902, *Wootton* s.n. (RM); Organ Mts., March 30, 1905, *Wootton* s.n. (UC, NY, P); mesa w. of the Organ Mts., May 2, 1906, *Standley* s.n. (N). EDOY CO. sandy roadsides, Carlsbad Caverns, May 24, 1931, *Nelson* 11388 (G, M, UC, RM); in the narrow valleys, Carlsbad Caverns, April, 1930, *Convis* 68 (RM); floor of Canyon, Guadalupe Mts., near three forks of Rocky Arroyo, April 30, 1932, *Wilkins* 1718 (PA); pasture of Carson Seep Ranger Station, Guadalupe Mts., June 4, 1932, *Wilkins* 2269 (PA). GRANT CO. grassy hills, Bear Mt., Sept., 1880, *Rusby* 188 (M, NY); 12 mi. s. of Grand Canyon of the Gila, July 6, 1892, *Wootton* s.n. (N); Mangas Springs, 18 mi. n. w.

of Silver City, alt 4470 ft., May 14, 1903, *Metcalf 64* (G, M, N, UC, RM, NY); Silver City, 1911, *Beard s n* (M); Lake Valley, 1915, *Beals s n* (N); gravelly sandy soil, canyon bottom, 3 mi n e Shelley Ranch, Mogollon Canyon, June 11, 1935, *Maguire, Richards & Moeller 11950* (US) GUADALUPE CO.: Buchanan, Aug 12, 1909, *Wootton s n* (N), vicinity of Santa Rosa, alt. 1400 m., Aug 4, 1926, *Arsene & Benedict 16663* (N) HIDALGO CO. Dog Spring, Dog Mts., Sept. 16, 1893, *Mearns 2354* (N) LINCOLN CO. Gray, alt. nearly 6000 ft., July 30, 1898, *Skehan 54* (G, M, N, RM, NY, P); along Ruidoso Creek, in the White Mts., Aug 5, 1901, *Wootton s n* (N); juniper belt, Capitan, May 8-9, 1902, *Earle 647* (NY). OTERO CO. Dry Canyon, Sacramento Mts., Alamogordo, alt 4600 ft., April 7, May 24, 1902, *Rehn & Viereck s n* (PA, P), near base of Sacramento Mts., May 8-19, 1902, *Earle 576* (NY) QUAY CO. corn fields, open plains, Tucumcari, July 24, 1909, *Fisher 24* (N) RIO ARriba CO. Ojo Caliente, alt 6000 ft., Aug. 25, 1894, *Smith s n* (PA) SANDOVAL CO. at the foot of hills, Rio del Norte, w of Santa Fe, May 24, 1847, *Fendler 414* (M), vicinity of Santa Fe, Anchor Ranch, July 3, 1926, *Arsene & Benedict 17130* (N, UC) SAN JUAN CO. dry hills, vicinity of Farmington, alt 1550-1650 m., July, 1911, *Standley 6953* (N), dry hills, Navajo Indian Reservation, in the vicinity of the Shiprock Agency, alt. ca 1425 m, July 25, 1911, *Standley 7279* (N), dry hills, Navajo Indian Reservation, n. end of Carrizo Mts., July 31, 1911, *Standley 7470* (N, NY), dry hills, vicinity of Cedar Hill, alt. ca. 1900 m, Aug 17, 1911, *Standley 8041* (N) SANTA FE CO. foot of dry, stony hills, June-July, 1847, *Fendler 450* (M), vicinity of Santa Fe, Galisteo, alt. 1865 m, Aug 23, 1926, *Arsene & Benedict 15818* (G, UC), Glorieta Pass, near Glorieta, alt, 7500 ft, July 20, 1934, *Benner 5958* (PA) SAN MIGUEL CO. Pecos, alt. 6800 ft, Aug 15, 1908, *Standley 4942* (NY, G, M, N) SOCORRO CO. Fort Tularosa, Aug 10, 1900, *Wootton s n* (N). TAOS CO. between Barranca and Embudo, alt. 5900-6900 ft., May 27, 1897, *Heller & Heller 3595* (M, N, NY). VALENCIA CO.: Laguna, Sept. 18, 1906, *Bailey 1049* (N), sandy plains along Highway No 66, e of Laguna Pueblo, May 28, 1935, *Nelson & Nelson 2182* (M, RM, NY). UNION CO. dry hills on the Sierra Grande, alt 2100-2925 m, June 18, 1911, *Standley 6059* (N); just w of Clayton, May 30, 1931, *McKelvey 2454* (G, P); s of Des Moines, June 2, 1934, *McKelvey 4881* (G)

TEXAS ARMSTRONG CO. in valleys, Paloduro Canyon region, Sept 4, 1917, *Young s n* (M). ATASCOSA CO. sandy soil, 35 mi. s of San Antonio, May 21, 1921, *Schuls 466* (N). BREWSTER CO. dry ground, foothills of Chisos Mts., Sept. 12, 1915, *Young s n* (M); slope near Alpine, Aug 28, 1935, *Sperry T312* (N); Sul Ross College Campus, Sept. 21, 1935, *Sperry T324* (N); Chisos Mts., June 8, 1936, *Sperry 97* (N), Comanche Springs, Chisos Mts. area, July 17, 1937, *Warnock 729* (N); Dog Flats, March 31, 1940, *Sperry 1750* (G); Alpine, June 20, 1941, *Innes & Moon 1276* (G). BRISCOE CO. Floyds Crossing, May 9, 1930, *Demaree 7623* (M); Quitaque, April 28, 1934, *Tharp s n* (NY) CONCHO CO. rocky hills and plains, Concho, April, —, *Reverchon 1506* (G, M, PA, NY). CULBERSON CO. Guadalupe Mts., Oct., 1881, *Harvard s n* (N); foothills, Guadalupe Mts., Aug. 21, 1916, *Young s n* (M); near Van Horn, April 18, 1930, *Wolff 1690* (N); gravelly flat below McKittrick Canyon, Guadalupe Mts., alt 1650 m., July 23, 1931, *Moore & Steyermark 3619* (M); gypseous soil on level

plain, 1 mi. s. of the Texas-New Mexico line on Highway No. 62 e. of Guadalupe Mts., Aug. 14, 1942, *Waterfall* 3763 (G & Priv. Herb. U.T.W.) EL PASO CO.: El Paso, March, 1851, *Thurber* 170 (G); El Paso, May, 1881, *Vasey* 426 (N); El Paso, April 25, 1884, *Jones* 3764 (N, RM, NY, P); in cultivated lands, vicinity of El Paso, 1911, *Stearns* 37 (N); Fabens, April 10, 1930, *Jones* 26394 (M, P); growing in Hueco Mts. near Highway No. 62, Aug. 16, 1942, *Waterfall* 3923 (G, Priv herb. U.T.W.). HALL CO.: Memphis, May 27, 1930, *Martin*, A. C. 278 (N). HARTLEY CO.: open ground, along streams, Channing, June 19, 1918, *Palmer* 14171a (M). HOCKLEY CO.: in sandy open grounds, Sept. 10, 1927, *Harris* 112 (PA). HOWARD CO.: prairies near Big Spring, June 11, 1900, *Eggert s. n.* (M). HUDSPETH CO.: Sierra Blanca, July 6, 1895, *Mulford* 291 (M); sandy ground near Sierra Blanca, May 13, 1901, *Eggert s. n.* (M); in arroyo, 4 mi. w. of Sierra Blanca, July 4, 1921, *Ferris & Duncan* 2471 (M); calciferous soil on level plains, 3 mi. e. of Sierra Blanca, Aug. 18, 1942, *Waterfall* 4018 (G, Priv herb. U.T.W.); growing on rock debris and sand between hills in the Three Mile Mts 6 mi. w. of Van Horn, Aug. 19, 1942, *Waterfall* 4057 (Priv herb. U.T.W.). LAMB CO.: in rich, open woods, Sept. 8, 1927, *Harris* 111 (N). LUBBOCK CO.: Texas Tech. Campus, Lubbock, April 21, 1930, *Demaree* 7530 (G, M, N); plains, Lubbock, July 2, 1935, *Reed* 4184 (RM). MARTIN CO.: Stanton, June 14, 1900, *Eggert s. n.* (UC, RM); prairie near Stanton, June 13, 1900, *Eggert s. n.* (M). MAVERICK CO.: sandy hillsides, Eagle Pass, March 5, 1919, *Hanson* 370 (G, M, N, NY). PRESIDIO CO.: Marfa, Sept. 18, 1920, *Eggleston* 17316 (NY); s. w. of Marfa, April 14, 1929, *Ingram* 2658 (N). RANDALL CO.: dry hills, Palo Duro Canyon, Sept. 2, 1907, *Ball* 1232 (N, UC); Palo Duro Canyon, Sept. 1910, *Ball & Cory* 1708 (N). RUNNELS CO.: Ballinger, 1889, *Neally* 393 (N). TERRELL CO.: dry, rocky plains, near Feodora, April 26, 1928, *Palmer* 33505 (M, NY); Dryden, April 24, 1928, *Cory* 2758 (G); Sanderson, June 11, 1930, *Cory* 3638 (G). TOM GREENE CO.: 1883, *Sowlard s. n.* (M); San Angelo, May 20, 1903, *Reverchon* 3978 (M, NY). VALVERDE CO.: Devils River, May 15, 1914, *Orcutt* 6205 (M); April 16, 1928, *Cory* 2755 (G). WARD CO.: on mesquite plains 16 mi. e. of Pecos, Aug. 7, 1941, *Shreve* 10257 (G). UTAH GRAND CO.: sandy soil, Thompson Springs, May-Oct. 1899, *Purpus* 6462 (M, N, UC, P); Thompson Springs, alt. 1500 m., June 29, 1911, *Rydberg & Garrett* 8320 (NY); proposed dam-site, near Wilson Mesa, alt. 1600 m., July 1, 1911, *Rydberg & Garrett* 8389 (NY); Moab and vicinity, alt. 1200-1500 m., July 1-2, 1911, *Rydberg & Garrett* 8438 (UC, NY); Pritchett Canyon, alt. 1200 m., *Rydberg & Garrett* 8505 (NY). IRON CO.: road to Cedar Breaks, 4 mi. e. of Cedar City, alt. 7000 ft., Aug. 5, 1934, *Maguire*, B. 13358 (US, RM). KANE CO.: on sandstone, 2 mi. n. e. of Kanab to Red Canyon, alt. 5200 ft., *Stone, Mrs. F.* 292 (NY). SAN JUAN CO.: along San Juan River, near Bluff, alt. 1200-1500 m., Aug. 25-29, 1911, *Rydberg & Garrett* 9893 (NY); along San Juan River, near Bluff, alt. 1200-1500 m., Aug. 25-29, 1911, *Rydberg & Garrett*, 9961 (N, RM, NY); sandy flats in Cottonwood Canyon, Bluff, alt. 4200 ft., June 27, 1933, *Maguire*, *Richards*, *Maguire*, R. & *Hammond* 5637 (US); dry bank, North Twin Canyon, Cottonwood Canyon, alt. 4250 ft., June 28, 1933, *Maguire*, *Richards*, *Maguire* & *Hammond* 5638 (US); gravelly soil, Black brush assn. 1 mi. w. of Mexican Hat, April 20, 1936, *Maguire* 17981 (US). WASHINGTON CO.: Silver Reef, alt. 3500

ft., May 3, 1894, *Jones, M. 5149w* (N, P); hot, sandy canyons, Diamond Valley, May 19, 1902, *Goodding 894* (M, N, RM type of *G. gracilis*).

OKLAHOMA. HARPER CO. field, Buffalo, May 4, 1913, *Stevens, G. W. 292* (G); rough hillside, Buffalo, May 20, 1913, *Stevens 531* (M, G, P, N). HARMON CO.: prairie, Hollis, June 21, 1913, *Stevens 1101* (G, NY).

COLORADO. BENT CO. Rule Creek, June 9, 1910, *Osterhout 4313* (RM). DELTA CO.: Delta, May 20, 1911, *Osterhout 4499* (RM); dry hillside near the Gunnison River, 8 mi. w of Delta, alt. 5000 ft., Aug. 27, 1937, *Rollins 1971* (G, M, NY). EL PASO CO.: Dead Mans Canyon, 22 mi. s w. of Colorado Springs, July 23, 1924, *Schmoll 1549* (RM). FREMONT CO.: Canyon City, May, 1871, *Brandeggee 14* (M, UC); Aug. 24, 1873, *Greene s n* (G); Canyon City, June 26, 1895, *Osterhout 563* (RM); Florence, alt. 5000 ft., June 1895, *Tweedy 335* (N); Canyon City, June 12, 1903, *Osterhout 2741* (RM, P); dry hills, Canyon City, alt. 1665 m., July 2, 1921, *Bethel, Willey & Clokey 4379* (M, N, PA, UC, RM, WS, NY, P); dry roadsides, Canyon City, May 19, 1925, *Nelson 10508* (M, UC, RM). GUNNISON CO. Deer Run, region of the Gunnison Watershed, alt. 4700 ft., June 11, 1901, *Baker 100* (M, G, N, NY, P). HINSDALE CO. San Juan, July, 1875, *Brandeggee s n* (UC). HUERFANA CO. Walsenburg, alt. 1800 m., *Rydborg & Vreeland 5493* (RM, NY); roadside, Walsenburg, June 20, 1917, *Johnston & Hedgcock 233* (RM). LAS ANIMAS CO.: Brantly Canyon, June 10, 1900, *Osterhout 2061* (RM); along the highway near Trinidad, June 29, 1929, *Mathias 500* (M, P). LA FLATA CO. Durango, July 16, 1898, *Baker, Earle & Tracy 601* (G, M, N, RM, NY, P). MESA CO. Grand Junction, alt. 4000 ft., June 21, 1894, *Jones, M. E 5476k* (N, P); Grand Junction, alt. 4500 ft., May 16, 1898, *Crandall 2961* (N, RM, WS, NY); near river, Grand Junction, alt. 4700 ft., June 15, 1900, *Stokes s n* (N, NY); stony knoll, near Dolores River, 1 mi. s. of Gateway, Aug. 9, 1937, *Rollins 1907* (M, NY). MONTROSE CO. dry hillsides, alt. 5400 ft., Paradox, June 21, 1912, *Walker 154* (G, N, RM); dry hills, alt. 5400 ft., Naturita, June 7, 1914, *Payson, E. 402* (G, M, RM). PUEBLO CO. on plains, Pueblo, July, 1882, *Woodward s n* (G); dry mesa, n e. of Pueblo, June 7, 1915, *Pennell 5763*; dry hills, Pueblo-Walsenburg, alt. 1665 m., June 26, 1921, *Bethel, Willey & Clokey 4378* (NY).

MEXICO, CHIHUAHUA. high dry land near Chihuahua, April 28, 1847, *Gregg, J 524* (M); Bachimba Canyon, April 2, 1885, *Pringle 36* (G); Sta. Eulalia plains, Aug. 18, 1885, *Wilkinson 127* (N, UC); Sta. Eulalia Plains, Sept. 26, 1885, *Wilkinson s n* (N); vicinity of Alda, May 15-17, 1908, *Palmer 244* (G, M, N, NY); arid hill slopes on plateau, 3 mi. w. of San Ysidro, May 23, 1929, *Mexia 2555* (N, UC); 4 mi. n. of Tucubaya, grassy plain, alt. 4700 ft., Sept. 25, 1938, *Johnston 7965* (G); Cd. Camargo, alt. 4000 ft., Aug. 2-5, 1939, *White 2257* (G); 3 mi. n. of Cd. Jimenez, road to Cd. Camargo, Aug. 1, 1939, *White 2166* (G); common on hillalides, Canyon del Indio Filipe, ca. lat. 28°33', a deep wooded canyon with running water in the igneous Sierra Hechiceros, close to the Chihuahuan boundary, Sept. 27-29, 1940, *Stewart 181* (G); gravelly plain, base of wool-sack hills, 1 mi. e. of Cieneguita, Sept. 21-22, 1940, *Johnston & Mueller 1415* (G); on dry meadow below old springs, Sierra de Hechiceros, vicinity of Rancho El Tule, near the Chihuahuan boundary, Sept. 17-19, 1940, *Johnston &*

Mueller 1316 (G); sandy flats, broad valley, 10 km. s. of Rancho de Encinillas, July 6, 1941, *Stewart* 702 (G). COAHUILA. valley of the Rio Grande, below Donana, Parry, Bigelow, Wright & Schott 609 (N, NY); s w of Parras, Feb.-Oct., 1880, *Palmer* 723 (G, N, PA); Torreon, Oct. 13-20, 1898, *Palmer* 492 (G, M, N, UC, NY); open slopes of igneous hill near Santo Domingo, July 4, 1936, *Wynd, Lyle & Mueller* 473 (G, M, N, NY); 30 mi. s. e. of San Carlos, silty desert plain, 7 mi. w of Providencia, Aug. 10, 1940, *Johnston & Mueller* 105 (G)

DURANGO. Durango City, Aug. 1, 1898, *Nelson, E. W.* 4608 (G, N); Tepehuanes, Mar. 25-Apr. 16, 1906, *Palmer* 35 (G, M, N, UCM, NY); Tepehuanes, Mar. 25-Apr. 16, 1906, *Palmer* 37 (G, N); in bottom lands and old fields, vicinity of Durango, June, 1896, *Palmer* 134 (G, M, N, UC, NY); vicinity of Durango, Sept. 1896, *Palmer* 593 (G, M, N, UC, RM, NY); Inde, alt. 2000 m., Aug. 1927, *Reko* 5238 (N).

NUÉVO LEÓN Monterrey, Mar. 20, 1900, *Trelease* 74 (M)

6a. *Gaillardia pinnatifida* var. *linearis* (Rydb.) S. Biddulph comb. nov. *G. linearis* Rydb. in N. Am. Fl. 34^a: 137. 1915.

Leaves linear or narrowly linear-oblongate, entire or with a few narrow lobes below; lower leaves long petioled, the upper sessile or sometimes short petioled; otherwise as in the species.

Type: White Water, Chihuahua, Mexico, June 18, 1892, E. A. Mearns, 358.

It seems best not to give specific rank to this form, which is based only on vegetative characters and whose range lies, apparently, entirely within the range of the species from which it is a segregate.

DISTRIBUTION. Southeastern Arizona and southwestern New Mexico southward to Chihuahua and Coahuila.

Specimens examined ARIZONA. COCHISE CO. table lands, San Bernardino, June, 1851, *Thurber* 376 (G); Huachuca Mts., alt. 5500 ft., Sept. 2, 1903, *Jones, M. E.* s. n. (P); calcareous outwash, Chiricahua Mts., alt. 5400 ft., Paradise, Sept. 30, 1907, *Blumer* 2199 (G, N, NY); semi-wooded Saw Canyon flats, Chiricahua Mts., July 30, 1907, *Gooding* 2331 (UC, RM), Pinery Canyon at Junction of N and S Forks, alt. 6000 ft., Chiricahua Mts., July 1, 1919, *Stone* 442 (PA, RM); Cave Creek, Chiricahua Mts., May 31, 1929, *Peebles* 5883 PIMA CO. Rosemont, alt. 4000 ft., Oct. 4, 1904, *Thomber* 348 (N, UC, P) YAVAPAI CO. Beaver Creek May-Oct., 1902, *Purpus* 79 (M, N, UC).

NEW MEXICO. GRANT CO. summit, granite soil, Burro Mts. Aug. 4, 1906, *Blumer* 1849 (G, N) SOCORRO CO. Socorro, alt. 1400 m., Oct. 5, 1919, *Eggleston, W. W.* 16222 (M).

MEXICO. CHIHUAHUA. between San Pedro & Fronteras, Sept. 20-24, 1890, *Hartman, C. V.* 938 (G); Mexican boundary line, near White Water, June 18, 1892, *Mearns, E. A.* 354 (N); Mexican boundary line, near White Water, June 18, 1892, *Mearns, E. A.* 358 (N, UC, NY type of *G. linearis* Rydb.); Parral, Sept.

19, 1898, *Goldman, E. A. 118* (G, N, NY); Sierra en Media, Sept. 28, 1899, *Nelson, E. W. 6492* (G, N); Colonia Juarez, Sierra Madre Mts. alt. 5200 ft., Sept. 11, 1903, *Jones, M. E. s. n.* (P), grassy plain, 7 mi. n. e. of La Morita, Sept. 26, 1938, *Johnston, I. M. 7968* (G), 1 mi. w. of Carretas, road to Cuattemoc, alt. 5400 ft., Aug. 21, 1939, *White, S. S. 2484* (G); Carretas, Border of Chihuahua and Sonora, Municipio de Janoa, alt. 4800 ft., Aug. 26-28, 1939, *White, S. S. 2524* (G); moist silty flat flooded after rains, 7.5 mi. s. of Piramide, Aug. 11-12, 1941, *Johnston 8107* (G), same data *Johnston 8154* (G)

COAHUILA, open hillsides, 6 km. e. of El Tule, southern foothills of the igneous Sierra Hechiceros, ca. 24 km. due n. of Castillon and close to the Chihuahuan boundary, June 13, 1941, *Stewart, R. M. 484* (G), slope of wide grassy valley, on tableland trail from head of Canyon del Cuervo Chico northward towards Valle de Flores, 16-20 km. n. of Cuesta Zozaya, alt. ca. 1500 m., Aug. 27, 1941, *Johnston, I. M. 8535* (G), grassy flat, western slopes of the Sierra del Carmen, 6 km. n. e. of Hacienda de la Encantada, Sept. 11, 1941, *Stewart, R. M. 1545* (G), gravelly bench, local on tableland, Canyon just e. of Palos Blancos, road from Ocampo w. over the mts. to Puertecito, Sept. 19, 1941, *Johnston, I. M. 9270* (G)

7. *Gaillardia flava* Rydb. in N. Am. Fl. 34⁺: 139. 1915.

A yellowish-green perennial, somewhat woody at the base; stem pubescent, much branched, about 3 dm. high, leaves 3-5 cm. long, obovate in outline and pinnately parted, the divisions lanceolate and somewhat toothed, punctate and pubescent, peduncles 5-10 mm. long; involucre bracts lanceolate-acuminate, about 1 cm. long, pubescent; ray flowers neutral, ligules pale yellow, glandular-granuliferous, about 8 mm. long, deeply three-cleft, disk 15-18 mm. broad; disk corollas light yellow, cylindro-campanulate, the lobes triangular and covered with moniliform hairs; achenes 2 mm. long, covered with hairs; pappus scales lanceolate, 5-6 mm. long the midrib produced into an awn between the lobes of the two-cleft apex.

Type: at the Lower Crossing (of the Colorado River) Utah, July 2, 1898, M. E. Jones, 6412

This species may be merely a form of *G. pinnatifida*. It is known from only two collections as given below, the type and that from Grand Co., Utah. (See Fig. 5.)

Specimens examined UTAH GRAND CO. along e. side of Green River between Florence and Chandler Canyons, Uinta Basin, alt. 4500 ft., Aug. 2, 1935, *Graham 9972* (G).

UTAH. COUNTY NOT DETERMINED Lower Crossing, alt. 4500 ft., July 2, 1898, *Jones, M. E. 6412* (G, M, N, P type)

8. *Gaillardia Mearnsii* Rydb. in Bull. Torr. Bot. Club 37: 443. 1910.*G. crassifolia* A. Nels. and MacBride in Bot. Gaz. 61: 46. 1916.*G. straminea* A. Nels. in Univ. Wyo. Publ. Bot. 1: 137. 1928.

Perennial; stem 3-6 dm. high; striate; leaves long petioled, oblanceolate, entire or coarsely lobed or toothed, the lower much longer than the upper; head scapose, peduncle 10-20 cm. long; involucre bracts lanceolate-acuminate, covered with moniliform hairs, the margins thin and soft ciliate; setae stiff, almost equaling the body of the achene; ray flowers neutral, yellow at first, the base becoming purplish or pink, strongly purple-veined; disk 1.5-2.5 cm. broad; disk corollas cylindro-campanulate, lobes triangular, yellow below, purple above by reason of the moniliform hairs; achenes 3-4 mm. long, the body covered with long silky hairs; pappus scales lanceolate with an awn two-thirds as long as the body.

Type: Forte Verde, Arizona, May 4, 1888, E. A. Mearns, 322.

DISTRIBUTION: Sandy, rocky soils along the Green, Virgin and Little Colorado Rivers in the states of Utah, Nevada, and Arizona (See Fig. 5.)

Specimens examined: ARIZONA. YAVAPAI CO. Cornville, May 5, 1921, Jones, W. W. s. n. (UC); Ft. Verde, May 4, 1888, Mearns, E. A. 322 (NY, type).

NEVADA. CLARK CO. 20 mi. s. e. of Indian Springs on road to Alamo, May 18, 1938, Train 1762 (NY).

UTAH. EMERY CO.: sandy bluffs, near Green River, alt. 4700 ft., June 12, 1900, Stokes s. n. (N, NY). KANE CO. sandy, rocky soil, Zion National Park, alt. ca. 5700 ft., July 2, 1938, Boyle Z240 (UC). WASHINGTON CO. gravelly hillside La Verken, alt. 3000 ft., April 23, 1931, Cottam 4742 (NY, US); Hurricane, alt. 1060 m., Sept. 14-15, 1918, Eggleston 14866 (G); Silver Reef, alt. 4500 ft., May 5, 1894, Jones, M. E. 5176s (N, P); La Verken, alt. 3400 ft., May 7, 1894, Jones, M. E. 5177 (N, M, UC, RM, NY, P, type of *G. straminea* and *crassifolia*); Springdale, alt. 4000 ft., May 14, 1894, Jones M. E. 5228b (N); rocky slopes 1 mi. n. of Hurricane, alt. 3000 ft., May 20, 1933, Maguire and Blood 4513 (M, UC, RM, US, P); hillside along road, 2 mi. n. of La Verken, alt. 3200 ft., May 17, 1933, Maguire and Blood 4514 (UC, RM, US, P); Arizona strip, summer, 1938, McAllister 57 (US); Zion Canyon in Zion National Park, alt. 4000-5000 ft., May 7, 1934, McKelvey 4220 (G); St. George, 1877, Palmer 256 (G, M); valley of the Virgin near St. George, 1874, Parry 122 (G, M, N, NY, P); sandy soil, n. slopes, Shapit Indian Reservation, Apr. 26, 1938, McAllister and Howard 55 (US).

9. *Gaillardia arizonica* A. Gray, Syn. Fl. N. Am. 1: 353. 1884.*G. pedunculata* A. Nels. in Bot. Gaz. 47: 432. 1909.*G. Pringlei* Rydb. in N. Am. Fl. 34^o:139. 1915.*G. crinita* Rydb. loc. cit.*G. arizonica* *Pringlei* (Rydb.) Blake in Contr. U. S. Nat. Herb. 25: 597-598. 1925.

G. arizonica var. *Pringlei* (Rydb) Blake in Jour. Wash. Acad. Sci. 30: 472. 1940.

Annual plant with several scapose stems from a rosette of leaves; stem 1.5-3 dm. high, striate; leaves all basal, oblanceolate in outline, long petioled, coarsely toothed or lobed, glandular punctate and strigose with moniliform hairs; peduncle 5-25 cm. long; involucre bracts linear-lanceolate, acute, 7-8 mm. long; setae of the receptacle subulate, not quite equaling the body of the achenes; disk 1.5-2 cm. broad; disk corollas cylindro-campanulate, yellow, the triangular lobes covered with yellow moniliform hairs; ray flowers neutral, ligules yellow with prominent veins, 10-15 mm. long, achenes 2-3 mm. long, covered with white silky hairs from the base; pappus scales white, shining, obovate, rounded or retuse at the apex without distinct midrib or awn, or occasionally with a short awn.

Type: Camp Grant, Graham Co., Ariz. April 27, 1867, E. Palmer, 137.

Rydberg apparently mistook the Palmer specimen No. 256.5 collected at Beaver Dam in 1877 as the type (NY); however, at the Gray Herbarium the sheet marked "n. sp." by Gray is the one containing the Palmer specimen No. 137. This is a patched sheet which also contains the Greene collection No. 1102 cited in the original description.

The segregate *G. Pringlei* was based on plants with a pappus having a short awn, but occasional plants are found with the pappus both awned and not awned in the same head.

DISTRIBUTION. Southeastern Nevada southward to southern Arizona. One station in Wayne Co., Utah. (See Fig. 5.)

Specimens examined ARIZONA COCHISE CO.: Lowell, May 2, 1884, *Parish 118* (G, N, M, UC, NY, WS) COCONINO CO.: 15 mi. below Black Falls, Little Colorado, May 15, 1901, *Ward s. n.* (N). GILA CO.: gravelly clay loam, 15 mi. e. of Coolidge Dam, highway 180, May 13, 1935, *Maguire 11306* (US); stony lava clay soil, n. slope of mesa, 5 mi. n. of Coolidge Dam, April 4, 1935, *Maguire 10520* (US). GRAHAM CO.: Camp Grant, April 27, 1867, *Palmer 137* (M, G type), grassy openings among mesquite bushes, Camp Grant, April 2, 1867, *Palmer 138* (M). MARICOPA CO.: near Beardsley, alt. 750 m., April 15, 1937, *Collom, 760* (M, N); Wickenburg, alt. 2100 ft., May 5, 1903, *Jones, M. E. s. n.* (P); Phoenix, May 17, 1897, *Kunze s. n.* (NY); near Gila Bend, March 8, 1928, *Peebles and Harrison 5003* (N); mesas near Phoenix, June 17, 1882, *Pringle s. n.* (G); 27 mi. n. w. of Haasayampa on the road to Salome, March 22, 1936, *Shreve, 7617* (M). MOHAVE CO.: desert, 12 mi. w. of Kingman, April 14, 1937, *Maguire 17982* (US). NAVAJO CO.: Fort Apache, 1903, *Mayerhoff 114* (M). PIMA CO.: Tucson, 1911, *Beard s. n.* (M); plains near Tucson, March, 1877, *Greene, 1102* (G); Santa Catalina Mts, Nov. 26, 1900, *Griffiths 2196* (NY); Range-plots, Tucson, Feb.

2, 1901, *Griffiths* 2250 (NY); Range-plots, Tucson, Feb. 12, 1901, *Griffiths*, 2262 (NY); Range-plots, Tucson, March 4, 1901, *Griffiths* 2386 (NY, type of *G. crinita*); Coyote to Santa Rosa, March 13 to April 23, 1903, *Griffiths* 3996 (N); Santa Rita Forest Reserve, March 31 to April 23, 1903, *Griffiths* 4152 (N); Topawa, April 28, 1931, *Harrison* 7762 (N); near Tucson, April, 1880, *Lemmon s. n.* (UC); Sella, Papago Reservation, Feb. 24, 1926, *Loomis and Thackery* 913 (N); mesas near Tucson, April, 1884, *Pringle s. n.* (N, G, M, PA, UC, WS, NY, type of *G. Pringles*), Tucson, alt. 2400 ft, April 25, 1903, *Thomber* 438 (N, M, UC, NY, P); Tucson, May 1, 1892, *Toumey* 697b (N); Tucson, April 12, 1892, *Toumey* 697a (N); PINAL CO. Maricopa, Feb.-May, 1885, *Gray, A. s. n.* (G); near Dudleyville, March 13 to April 23, 1903, *Griffiths* 3669 (N); Magma, Dec. 22, 1926, *Loomis* 821 (N); near Maricopa, Feb. 25, 1927, *Peebles and Harrison*, 3540 (N) YUMA CO.: 23 mi s. e. of Salome on Harquahala plains on road to Hassayampa, alt. ca. 400 m, March 22, 1936, *Keck* 4265 (RM, P).

UTAH WAYNE CO. dry desert, 13 mi w. of Hanksville, May 6, 1940, *Maguire and Maguire* 18153 (US).

NEVADA CLARK CO. loose soils, Moapa, April 8, 1905, *Goodding* 2177 (G, M, RM, type of *G. pedunculata*), Moapa, alt. 1400 ft, April 27, 1904, *Jones, M. E. s. n.* (N, M, G, NY, RM, P); St. Thomas, May 8, 1923, *Jones, M. E. s. n.* (P), 25 mi e. of Las Vegas on highway 91 to Glendale, May 26, 1937, *LaRivers and Hancock* 182 (NY), desert mesa, 15 mi e. of Glendale, alt. 4000 ft, May 19, 1933, *Maguire and Blood* 4511 (US); desert mesa, 8 mi e. of Glendale, alt. 4000 ft, May 19, 1933, *Maguire and Blood* 4512 (UC, US). LINCOLN CO. Mormon Mts., alt. 3-6000 ft, July, 1906, *Kennedy and Goodding* 96 (N, M, UC, NY).

MEXICO. SONORA dry, sandy wash, 22 mi. s. of Sonoyta on road to Rocky Point, March 14, 1936, *Keck* 4151 (UC).

10. *Gaillardia Parryi* Greene in Bull. Torr. Bot. Club 27: 512. 1897

G. acaulis A. Gray in Proc. Am. Acad. 10: 73. 1874. not *G. acaulis* Pursh 1814.

A scapose perennial 7-25 cm. high; stem striate and with short hairs; leaves all basal, petioles 1-4 cm. long, blades 2-5 cm. long, thick, glandular punctate and obovate to oval in outline; involucre bracts lanceolate, acute, 6-8 mm. long, chartaceous at the base, hairy on the tips; setae of the receptacle flat and shorter than the body of the achene; heads yellow, solitary; ray flowers neutral, 10-15 mm. long, deeply three-cleft; disk 15-20 mm. broad; disk corollas cylindro-campanulate with triangular lobes covered with moniliform hairs; achenes about 6 mm. long including the awn, retuse at the tip.

Type: near Cedar City, Utah, 1874, C. C. Parry, s. n.

DISTRIBUTION Southwestern Utah and northwestern Arizona with one station in the Buckskin Mts. of Yuma Co., Arizona (See Fig. 5.)

Specimens examined ARIZONA MOHAVE CO Mokuak Pass, 1877, *Palmer 257* (N, M, G, NY); top of grade above Pagumpa, alt 5000 ft., April 23, 1894, *Jones, M. E 5095ak* (N); n of Wolf Hole, alt. 4800 ft., May 8, 1940, *Peebles and Parker 14735* (P) YUMA CO · Buckskin Mts., June 19, 1890, *Jones, M E s n* (M, N, UC, PA, P)

UTAH IRON CO Gypseous clay hills near Cedar City, July, 1874, *Parry 124* (G, M), near Cedar City, 1874, *Parry, 120* (G, M, N, NY, P) KANE CO.: Pahreah, 1883, *Siler s n* (M, PA), 5 mi n. of Mt Carmel highway, alt 6100 ft., June 29, 1935, *Maguire and Maguire 12302* (US), in clay, Pahreah, alt 4000 ft., May 25, 1894, *Jones, M E 5290* (M, N, UC, NY, P)

11. *Gaillardia spathulata* A Gray in Proc. Nat. Acad. Arts and Sciences 12: 59 1876.

Perennial, stem 1-2 dm. high with leaves extending two-thirds of the way up the stem, leaves 2-4 cm. long, petioled, spatulate or oblanceolate, conspicuously glandular-punctate and with moniliform hairs on both sides, peduncles 3-5 cm. long; involucre bracts lanceolate-acuminate, hairy and glandular and somewhat chartaceous at the base; setae of the receptacle subulate and ca. one-half as long as the body of the achene, disk 10-18 mm. wide; disk corollas cylindro-campanulate with triangular lobes covered with moniliform hairs, yellow; ray flowers occasionally pistillate, yellow, 3-cleft, 10-12 mm. long; achenes about 3 mm long, pappus scales 6-7 mm. long, lanceolate or sometimes retuse at the apex, the awn almost as long as the body of the scale; hairs from the base of the achene covering the body.

Type: Rabbit Valley, Utah, 7000 ft., 1875, L. F. Ward, *s n*.

DISTRIBUTION · Sagebrush desert in Carbon and Emery counties, Utah. (See Fig 5)

Specimens examined UTAH CARBON CO Farnham, 4800 ft., June 29, 1898, *Jones, M E s n* (P) EMERY CO Green River, June 21, 1889, *Jones, M. E s n* (M, N, G, RM, UC, P), 10 mi w of Green River, June 21, 1938, *Maguire and Redd 2174* (US), dry, sandy, rocky stream bottom, Calf Spring Wash, Buckthorn Canyon, San Rafael Swell, June 8, 1940, *Maguire 18490* (US), stony, sand desert, 32 mi e of Hanksville, May 8, 1940, *Maguire and Maguire 18221* (US); Calf Spring Canyon, 8 mi. from road, San Rafael Swell, May 10, 1940, *Maguire and Maguire 18311* (US), dry, clay, gravelly soil, San Rafael Swell, 20 mi. s. w. of Green River, May 15, 1931, *Cottam 4488* (US) WAYNE CO Rabbit Valley, alt. 7000 ft., July 15, 1875, *Ward 401* (N, PA, G, type); gravel, near Teasdale, alt 6500 ft., July 18, 1894, *Jones, M E s n* (M, P); Thurber, alt 6500 ft., July 18, 1894, *Jones, M E s n* (N, NY, UC); wash bed, 5 mi w of Fruita, June 29, 1940, *Maguire 19250* (US), s. e of Hanksville, June 10, 1941, *Parry 21738* (US).

12. *Galliardia multiceps* Greene in Bull. Torr. Bot. Club 24: 512. 1897.

Suffruticose perennial growing in bunches; stem 1.5-3 dm. high; leaves extending one-half to two-thirds of the way up the stem; leaves obtuse to acute, linear oblanceolate, sessile, 2-8 cm. long, punctate and covered with moniliform hairs on both sides; peduncle 3-10 cm. long; involucre bracts linear-lanceolate, acute, woolly with moniliform hairs; setae of the receptacle shorter than the body of the achene; disk 1.5-2.5 cm. broad; disk corollas cylindro-campanulate with triangular lobes, the lobes covered with purplish-brown moniliform hairs; ray flowers neutral, yellow with brown silky hairs; pappus scales 4-5 mm. long, lanceolate and often notched at the apex, the mid-rib extending into an awn one-third the length of the body.

Type: s. of Woodruff, Arizona, June 27, 1892, E. O. Wooton, s. n.

Dr. I. M. Johnston (1941) suspects that this plant is a gypsophilous species. However, he writes, "Should this plant prove to be a gypsophile, its distribution would appear unique. I know of no gypsophilous plant which ranges in eastern New Mexico, western Texas and adjacent Mexico, and also occurs in northern Arizona."

DISTRIBUTION. From eastern Coahuila northward along the bluffs of the Pecos River and westward to the Mogollon Mesa in Arizona. (See Fig 5.)

Specimens examined. ARIZONA. COCHISE CO.: Fort Huachuca, April 26, May 21, 1890, *Palmer 430b* (G, N, US). COCONINO CO.: between Winslow and Flagstaff, May 20, 1934, *McKelvey 4535* (G). NAVAJO CO.: s. of Woodruff, June 27, 1892, *Wooton s. n.* (N, type coll.); desert region between Flagstaff and the Petrified Forest just s. of National Monument, May 27, 1935, *Nelson and Nelson 2160* (N, M, NY, UC, RM, P, WS); Camp No. 6, Little Colorado River (ca 15 mi. w of Holbrook), Sept. 29, 1851, *Sitgreave Exped* (G); 40 mi. w of Winslow, May 20, 1934, *Stone 377* (NY); Holbrook, June 16, 1901, *Ward s. n.* (N, NY); Holbrook, Oct. 9, 1896, *Zuck s. n.* (N, M, NY).

NEW MEXICO. CRAVES CO.: gypseous soil on Comanche Bluffs overlooking the e. side of the Pecos, on highway 380, 7 mi. e. of Roswell, Aug. 23, 1942, *Waterfall 4288* (G, private herb. of U. T. Waterfall). DOBY CO.: in sandy soil in flats in the Pecos basin n. e. of Carlsbad on highway 62, Aug. 13, 1942, *Waterfall 3717* (G, private herb. of U. T. Waterfall); dry plains e. of Carlsbad, Aug. 12-20, 1924, *Standley 40293* (N).

TEXAS. HUDSPETH CO.: Ables, July 29, 1927, *Cory 2756* (G); gypseous sand along and near Salt Lake, e. of Salt Flats, Aug. 15, 1942, *Waterfall 3824* (G, private herb. of U. T. Waterfall).

MEXICO. COAHUILA: on desert 25 mi. sw. of Sabinas, Monclova, June 19, 1936, *Wynd and Mueller 209* (G, N, M, NY); dry, heavy alkaline soil, 1 mi. s. of Hermanas, ca. 46 mi. s of Sabinas, Aug. 24, 1938, *Johnston 7062* (G).

Section II. AGASSIZIA (Gray & Engelm.) S. Biddulph¹

13. *Gaillardia suavis* (Gray & Engelm.) Britton & Rusby in Trans. N. Y. Acad. 7: 11. 1887.

Agassisia suavis Gray & Engelm. in Proc Am Acad. 1: 49. 1847; Bost. Jour. Nat. Hist. 6. 229. 1850.

Gaillardia simplex A. Scheele in Linnæa 22: 160. 1849

Gaillardia tuberculata A. Scheele in Linnæa 22. 349. 1849.

Gaillardia odorata Lindl. ex A. Gray in Bost. Jour. Nat. Hist. 6. 230. 1850, as synonym.

Gaillardia trinervata Small, Fl. S. E. U.S., p 1293. 1903.

Perennial; stem scapiform, 3-8 dm. high; leaves basal, 5-15 cm. long, variable in shape from spatulate or oblanceolate-entire to only slightly toothed or lyrate pinnatifid, if entire strongly three nerved; leaf surfaces with a few scattered moniliform hairs; heads single, peduncles 3-8 dm. high; involucre bracts ovate-lanceolate, acute, herbaceous with a few long moniliform hairs, setae of the receptacle subulate; ray flowers usually not present, but if present short and not fertile, although they are sometimes styliiferous; disk 1.5-2 cm. broad or in fruit 2-3 cm. broad; corollas of the disk flowers urn-shaped about 6 mm. long and exceeded by the awns of the pappus, reddish-brown, fragrant; style branches with short, glabrous appendages; achenes 2.5 mm. long, the body covered with long white hairs; pappus including the awn 7-9 mm. long, ovate-lanceolate.

Type: plains near Bexar, Texas, 1846, Lindheimer, 437

This has previously been described as a winter annual, but it withstands the relatively severe winters of eastern Washington, sending up many new rosettes from the old roots each year.

DISTRIBUTION. Tall-grasslands from central Kansas southward to southern Texas and Nuevo Leon. (See Fig. 6.)

Specimens examined. TEXAS BEXAR OR COMAL CO prairie between San Antonio and New Braunfels, April, 1846, *Lindheimer s. n* (G type of *G. suavis*, M, N, UC). BANDERA CO poor dry soil, hills, Bandera Road, April 3, 1919, *Schultz 155* (N). BASTROP CO: Bastrop, 1928, *Duval s. n* (N). BELL CO.: Blackland prairie, near Temple, April 25, 1931, *Wolff 2874* (N). BEXAR CO: on stony prairies, near San Antonio, April, 1845, *Lindheimer 351* (M): San Antonio, April, 1853, *Thurber s. n.* (G); in fields in sandy loam, near Bracken, July 15, 1903, *Groth 102* (G, N, NY); San Antonio, April 19, 1911, *Clemens & Clemens 985* (M, RM, NY, P); rocky roadside, Kelly Field, April 1, 1932, *Metc 538* (NY, UC, P.). BREWSTER

¹AGASSIZIA comb. nov. Receptaculum setis longis rigidus; styli rami breves glabri; corollae disci dentibus brevibus triangularis Type species: *G. suavis*

co. Kokernot Spring area, Alpine, April 27, 1938, *Sperry T657* (G) COMAL co.: Comanche Spring, New Braunfels, May, 1849, *Landheimer 918* (G, M, N, UC, NY). COMANCHE co.: Comanche, May 8, 1900, *Eggert s n* (M, N, NY). CROCKETT co.: Ozona, April 13, 1930, *Jones 25911* (M, P). DUVAL co.: San Diego, 1885-86, *Croft 113* (NY). EDWARDS co. Rock Springs, April 17, 1930, *Jones 26396* (M, P). HAMILTON co. rocky or light soils, April-May 1882, *Reverchon 1505* (G, M, N, PA, NY, P). HAYS co. San Marcos and vicinity, summer, 1898, *Stanfield s n* (NY) HOOD co.: dry prairies near Granbury, May 4, 1900, *Eggert s n*. (M) KENDALL co. open calcareous ground, Boerne, May 18, 1916, *Palmer 9796* (N, M) KERR co. Bear Creek, alt 1600-2000 ft., April 30, 1894, *Heller 1680* (G, M, N, UC, RM, WS, NY), Kerrville, May 14-21, 1894, *Heller 1760* (N). KLEBERG co. Kingsville, March 24, 1920, *High 108* (M); Kingsville, March 25, 1920, *High 55* (M) GARZA co. Post, May 22, 1925, *Wootton s n* (N); e. of Post, May 19, 1932, *Reed 3594* (N) GOLIAD co. rocky prairies near Goliad, April 8, 1900, *Eggert s n* (M), Goliad, March, 1927, *Williams 60* (PA) GONZALES co. near Gonzales, April 29, 1930, *Martin 270* (N). LASALLE co. roadside, sandy loam, 10 mi n. of Encinal, March 30, 1935, *Wiegand & Wiegand s n* (G), grassy flats, 15 mi. e. of Cotulla, June 23, 1935, *Muns 13329* (P); 10½ mi. e of Cotulla, June 23, 1935, *Cory 15033* (G) LLANO co. Llano, May 12-15, 1899, *Bray 315* (N); granite outcrops, near Llano, Aug 4, 1931, *Wolff 3088* (N). MARTIN co. prairies near Stanton, June 14, 1900, *Eggert s n* (M, N, UC, NY) MAVERICK co. Eagle Pass, April, 1883, *Havard s n* (N) NUECES co. Corpus Christi, April 2, 1905, *Tracy 8951* (M, G, N, NY), w of Corpus Christi, March 29, 1932, *Jones 29469* (M, UC, P) PRESIDIO co. rocky hills, Shafter, April 10, 1919, *Hanson 549* (N). rocky hillsides, Shafter, April 10, 1919, *Hanson 555* (N), Bill Burtons Ranch, May 12, 1928, *Cory 2753* (G) RANDALL co. banks and depressions, plains, Canyon, June 13, 1918, *Palmer 14056* (N, M) TARRANT co. rocky prairies, Fort Worth, May, 1880, *Reverchon s n* (N, G); rocky prairies, Ft. Worth, April 1, 1902, *Reverchon 3227* (G, M, N, NY); Polytechnic, May 14, 1913, *Ruth 66* (M, N, PA, UC, RM) TAYLOR co. Abilene, May 25, 1902, *Tracy s n* (N, NY) TOM GREEN co. Knickerbocker Ranch, Dove Creek, May, 1880, *Tweedy 320* (N) TRAVIS co. Austin, May, 1872, *Hall s n* (N); dry banks, Austin, May 15, 1872, *Hall 355* (G, M, N, NY, P). UVALDE co. open ground, calcareous soil, Sabinal, June 16, 1916, *Palmer 10215* (M); Sabinal River, April 16, 1931, *McKelvey 1875A* (G) VALVERDE co. Langtry, May, 1913, *Orcutt 6148* (M); hillsides, Del Rio, March 10, 1919, *Hanson 379* (G, M, N, NY). WEBB co. sandy, clay, rocky soil, Minera, March 24, 1903, *Reverchon 3977* (M, G, N, NY); gravelly hills, Laredo, Feb. 20, 1919, *Hanson 352* (G, M, N, NY). WILSON co. Sutherland Springs, April 2, 1932, *Jones 29447* (M, P)

OKLAHOMA BLAINE co. butte, 8 mi s. of Watonga, May 25, 1935, *Goodman 2531* (M) CLEVELAND co. dry hills, Norman, May 4, 1924, *Bruner s n* (N). COMANCHE co. vicinity of Ft Sill, May 8, 1916, *Clemens 11846* (M, RM). GRANT co. Renfrow, May 14, 1906, *Ryan 2* (G) KINGFISHER co. Huntsville, May 16, 1896, *Blankenship s n*. (G, M, N, RM). LOVE co. rocky woodland, Lake Murray Park, April 24, 1937, *Beard 85* (PA) MURRAY co.: Arbuckle Mts. Davis, May 5, 1915, *Emig 482* (M); dry, rocky soil, Scotts Dome, n.e. of Dougherty, May 1,

1926, *Stratton* 76 (M); Platt National Park, May 28, 1935, *Merrill* 519 (NY). NOBLE CO June 18, 1900, *White* s.n. (RM) OKLAHOMA CO dry, sandy clay, creek bank, Oklahoma City, May 15, 1937, *Waterfall* s.n. (NY). PAYNE CO rocky hill in open field, 4 mi s.w. of Stillwater, May 13, 1926, *Stratton* 138 (M). WOODS CO at base of red clay butte, Cora, May 21, 1913, *Stevens* 6921 (G, M, P); same data, *Stevens* 543 (G, M, N, NY); red clay washes, Alva, May 30, 1913, *Stevens* 692 (G, P); along roadside not far from Alva, May 7, 1937, *Bondy* s.n. (M, RM)

KANSAS SUMNER CO June 19, 1899, *White* 209 (M)

MEXICO COAHUILA Saltillo, April 1-15, 1880, *Palmer* 728 (PA, N, G); Rio Grande Valley near Diaz, alt 700 ft, April 16, 1900, *Pringle* 8291 (G, M, N, PA, NY, UC, RM, P), Saltillo, Sept, 1898, *Palmer* 344 (G, N)

NUEVO LEON fields near Monterrey, alt 1800 ft, April 6, 1906, *Pringle* 13726 (G, N), Sierra Madre w of Icamole, Feb 3, 1907, *Safford* 1279 (N); on slopes of mountain, burned-off land with juniper and *Arbutus* present, 24 kms n.w. of Fraile, alt 2900 m, July 15, 1941, *Stanford, Retherford & Northcraft* 412 (G)

14. *Gaillardia comosa* A. Gray in Proc. Am. Acad. 19: 34. 1883.

G. nervosa Rydb. in N. Amer. Fl. 34: 138. 1915

A scapose perennial, 1-2.5 dm. high; plant covered with moniliform hairs; leaves all basal or extending one-third of the way up the stem, petioled, lobed or entire, involucre bracts lanceolate-acuminate, ca. 1 cm. long, covered with soft, moniliform hairs, setae of the receptacle much shorter than the achenes; ray flowers pistillate and often fertile, yellowish-pink with strong purple veins, 1-1.5 cm. long, trifid; disk 2-2.5 cm. broad; disk corollas cylindro-campanulate with triangular lobes, light brown to yellow, pappus scales lanceolate with short awn tips; schenes with long hairs extending beyond the body of the achene. Type: near Saltillo, Mexico, April, 1880, *Palmer* 721.

DISTRIBUTION Along the Tropic of Cancer in Tamaulipas and San Luis Potosí northward to southern Coahuila (See Fig. 6)

Specimens examined Saltillo, Feb-Oct., 1880, *Palmer* 721 (G, PA, N type); Carneros Pass, Sept. 11, 1889, *Pringle* 2309 (G, M, PA, UC, NY, N type for *G. nervosa*); in valley 15 km w of Concepcion del Oro just within the Coahuila border, alt 2300 m, July 19, 1941, *Stanford, Retherford & Northcraft* 495 (G), gravelly soil, hillside, 3 mi e of Cuatro Ciénegas, Aug. 24-26, 1938, *Johnston* 7111 (G), 11 mi s of Saltillo, Sept. 1-2, 1938, *Johnston* 7275 (G), local on rocky bench, vicinity of Aguaje del Pajarito, canyon at w end of Sierra de la Fragua, 2-3 km. n of Puerto Colorado, Sept. 1-3, 1941, *Johnston* 8671 (G), silty, possibly gypsiferous bank, gentle, sloping plain, s of El Oro, road n. of Cuatro Ciénegas, Sept. 7, 1941, *Johnston* 8878 (G), on banks of gypsum, Americanos, Sept. 23, 1941, *Johnston* 9381 (G); silty flat just above tanque of railroad pumping station, El Oro, Sept. 24, 1941, *Johnston* 9389 (G)

CHIHUAHUA: silty plain, 2 mi. s. of San Fernando, Sept. 25, 1938, Johnston 7943 (G).

NUGVO LEON: dry plain, 17 mi. s. e. of Galeana, alt. 5000 ft., Aug. 23, 1938, Mex. Biol. Exped. of Students of the Univ. of Ill., 1938, 1026 (G, NY).

SAN LUIS POROSI: Charcas, July-Aug., 1934, Lundell (M, N); Charcas, July-Aug., 1934, Whiting 790 (N).

TAMAULIPAS: on valley floor interspersed with arroyos and alluvial fans, near Miquihauana, alt. 2460 m, Aug. 8, 1941, Stanford, Retherford & Northcraft 790 (G).

ZACATECAS: plains, slopes, and hills, Cedro, Aug., 1908, Lloyd 103 (N, UC).

15. *Gaillardia megapotamica* (Spreng.) Baker in Mart. Fl. Bras. 6^a: 276. 1882-1884.

Guntheria megapotamica Spreng., Sys. Veg. 3: 449. 1826.

Polypteris brasiliensis Less. in Linnæa 6. 518. 1831.

Cercostylos brasiliensis Less., Synops. Gen. Comp. p. 239. 1832.

Cercostylos scabiosoides (Don) Arn. ex DC., Prodr. 7: 293. 1838.

Cephalophora Doniana Hook. in Jour. Bot. 3: 324. 1841.

Gaillardia Doniana var. *discoidea* Griseb, Pl. Lor. p. 140. 1874.

G. scabiosoides var. *radiata* Griseb, Pl. Lor. p. 140. 1874.

G. scabiosoides Griseb in Goett. Abh. 24. 199. 1879.

G. tontalensis Hieron. in Bol. Acad. Nac. Cordoba 4: 40. 1881.

G. megapotamica var. *scabiosoides* Baker in Mart. Fl. Bras. 6^a. 276. 1882-1884.

G. megapotamica var. *radiata* Baker in loc. cit.

G. megapotamica var. *radiata* f. *bicolor* O. Ktze., Rev. Gen. Pl. 3^a: 148. 1898.

G. megapotamica var. *radiata* f. *biflora* O. Ktze. loc. cit.

G. megapotamica var. *scabiosoides* f. *flava* O. Ktze. loc. cit.

G. megapotamica var. *scabiosoides* f. *fuscobrunnea* O. Ktze. loc. cit.

G. scabiosoides radiata Macloakie in Rep. Prince. Univ. Exped. Patagonia 8: 827. 1906.

Perennial, suffrutescent, stem 4-5 dm. high, branched from the base; stem striate and covered with moniliform hairs; leaves extending one-half to two-thirds of the way up the stem, 4-7 cm. long, linear to oblanceolate in outline, pinnatifid with linear segments or entire or toothed, glandular punctate and more or less covered on both sides with moniliform hairs; heads scapose on a peduncle 2-3 dm. long, involucre bracts linear-lanceolate, acuminate, ca. 1 cm. long, in two series, glandular punctate and covered with short moniliform hairs, somewhat scarious at the base; setae of the receptacle scarcely equaling the body of the achenes; disk 15-20 mm. in diameter; ray flowers present or absent, occasionally pistillate, but not fertile, 10-12 mm. long, 3-lobed, not prominently veined, yellow to red tipped with yellow; disk corollas

4 mm. long, cylindro-campanulate with triangular teeth, yellow or brown; appendages of the style short; achenes 2-3 mm. long, covered with hairs extending beyond the body of the achene; pappus with an awn extending from between the teeth at the apex, awns barbellate and ca. one-half as long as the body of the pappus, the entire pappus 3 mm. long.

Type: Rio Grande, Sellow, *s.n.*

This is a polymorphous species in which all combinations of characters are found throughout the range.

DISTRIBUTION: Argentina, from the Colorado River northward to Tucuman, Santiago del Estero, and El Chaco (See Fig. 6.)

Specimens examined ARGENTINA BUENOS AIRES along roadsides, along Camino de la Costa, beyond Magdalena, opposite Punta Piedras, alt. 10 m., Nov. 6, 1938, *Goodspeed 23207* (G), on river bank, Rio Quequen, 15 km. n. of Necochea, alt. 50 m., Dec. 12, 1938, *Eyerdam, Beetle & Grondona 23719* (G), in sand on edge of windswept sand dunes, full sun, near sea level, Rio Quequen, 15 km. n. of Necochea, Dec. 12, 1938, *Eyerdam, Beetle & Grondona 23723* (G); Buenos Aires, *Macrae s.n.* (G).

CATAMARCA: El Sancho, Andalgalá, Dec. 9, 1915, *Jorgensen 1515* (WS, UC, G, M); Rio Alumbrara, 1926, *Riggs 114* (G).

CHACO: Las Brenas, alt. 250 m., Nov. 5, 1929, *Venturi 9779* (G, N); Los Brenas, alt. 250 m., Nov. 1, 1929, *Venturi 9779* (G, N)

CORDOBA: Unquillo, 1926, *Bruch s.n.* (NY); Valle de las Reantes, Jan., 1923, *Castellanos, 12* (WS), Habita enfoldas de cerras, Alta Gracia, Dec. 4, 1926, *Parodi F448* (G); Cordoba, 1874, *Lorentz s.n.* (G); Dec. 4, 1891, *Kuntze s.n.* (M, N, NY).

ENTRE RIOS: Concepcion del Uruguay, 1880, *Lorentz s.n.* (N). LA PAMPA: low hills, sandy soil, shrub formation, ca. 60 km. e. of town of Rio Colorado, road to Bahía Blanca, alt. ca. 50 m., Dec. 16, 1938, *Eyerdam, Beetle & Grondona 23514* (G).

RIO NEGRO: vicinity of General Roca, 250-360 m., Dec. 29, 1914, *Fischer 68* (G, M, NY); Rio Negro, *Wilkes s.n.* (G); alkaline bottoms near Rio Negro, General Roca, Nov. 23, 1920, *Wetmore 786* (N)

SANTA FE: Canada de Gomez, Dec. 19, 1877, *Galander s.n.* (M, NY); Ceres, Oct., 1892, *Kuntze s.n.* (M, NY).

SANTIAGO DEL ESTERO: C. Pellegrini, alt. ca. 500 m., Dec. 11, 1927, *Venturi 3642* (G, N).

TUCUMAN: Granero, alt. 400 m., March, 1919, *Baileth 231* (WS); Chanar Poza, alt. 300 m., Oct. 17, 1919, *Venturi 517* (G, N); Rio Lules, alt. 450 m., Nov. 26, 1922, *Schreiter 2452* (WS); Cerro del Campa, alt. 800 m., December, 1928, *Venturi 7680* (G, N); Topia, alt. 700 m., Nov., 1920, *Venturi 1080* (G).

Section III. HOLLANDIA¹16. *Gaillardia lanceolata* Michx., Fl. Bor. Am. 2: 142. 1803.

G. bicolor Pursh, Fl. Am. Sept. 572 1814, in part.

G. bicolor Ell., Sketch 2: 449 1824.

Polypterus integrifolia DC., Prodr 5 659. 1836; in part.

Perennial; branches slender and spreading, 3-7 dm. high; stems reddish striate; upper leaves 2-8 cm. long, sessile, linear or oblanceolate; lower leaves 5-10 cm. long, oblanceolate, petioled, leaves glandular punctate with short moniliform hairs on both sides and short cilia on the margins; peduncles 5-20 cm. long; involucre bracts 8-10 mm. long, lanceolate, acute, covered with very short moniliform hairs, but not ciliate; setae of the receptacle short and weak; ray flowers sometimes absent, if present, neutral; rays 12-18 mm. long, red or sometimes yellow; disk ca. 2 mm. broad; disk corollas cylindro-campanulate, lobes caudate-acuminate with long purple moniliform hairs; achenes 2 mm. long, the hairs covering the body; pappus scales lanceolate, tapering into an awn twice the length of the body.

G. lanceolata differs from the following two species by its slender habit, its long peduncles, and the frequent absence of rays.

DISTRIBUTION: Longleaf, loblolly and slash pine forest of Florida, Georgia, Alabama, Louisiana and Mississippi, the oak-pine, oak-hickory forest of s e Texas and the tall-grass area of the coastal region. (See Fig 7)

Specimens examined TEXAS. BASTROP CO Bastrop, 1928, *Duval s n* (N). BEE CO 1 mi s of Papalote on the road between Sinton & Beeville, Aug 8, 1921, *Ferris and Duncan 3225* (M, NY) BEXAR CO San Antonio, 1897, *Wilkinson 88* (M); sandy soil, 10 mi s. of San Antonio, May 4, 1921, *Schubert 432* (N) BROOKS CO near Falfurrias, July 17, 1930, *Wolff 2418* (N) CAMERON CO May 8, 1900, *Bailey 233* (N). DENTON CO sandy pasture, 1 mi s of Denton, June 29, 1938, *McCart s. n.* (N, NY) FAYETTE CO Colony, 1893, *Crawford 33* (M) GALVESTON CO Galveston, July, 1842, *Lindheimer s n* (N), Kemah, May 8, 1921, *Fisher 20* (NY) GONZALES CO 1 3/4 mi. w. of Cottonwood Springs, April 16, 1934, *Cory 8388* (G) HAYS CO San Marcos and vicinity, summer, 1897, *Stanfield s n* (NY) HOOD CO prairies near Granbury, May 6, 1900, *Eggert s n* (M). JACKSON CO prairies, Granado, March 20, 1916, *Palmer, 9214* (N, PA). MATAGORDA CO 6.8 mi. w of Palacios, Sept. 18, 1936, *Cory 20292* (G). MEDINA CO dry ground, Noonans, July 22, 1900, *Earle and Earle 433* (NY). NEWTON CO : 16 mi s. of

¹HOLLANDIA sect. nov. Receptaculum setis parvis dentiformibus; styli rami longi hispiduli, corollae disci dentibus caudato-acuminatus. Type species: *G. lanceolata*. Named in honor of President Emeritus Ernest O Holland, whose active interest in the herbarium of the State College of Washington has been an important factor in its growth.

Newton, Oct. 4, 1934, *Cory 11002* (G) SABINE CO : 10 mi s of Yellow Pine, Oct. 3, 1934, *Cory 10826* (G) TARRANT CO . sandy woods, Village Creek, May, 1880, *Reverchon 525* (N) ; prairies, Ft. Worth, June 25, 1918, *Palmer 14228* (N) WASHINGTON CO rocky banks, Burton, May 26, 1872, *Hall 353* (G, N, NY, P). WILSON CO . Sept., 1879 to Oct., 1880, *Palmer 730* (G, N)

FLORIDA BRYAN CO sandy open oak woods and roadsides, 5 mi n w of Ways, July 22, 1927, *Wiegand and Manning 3461* (G, P) CALHOUN CO . We-wahitchka, Aug., 1896, *Chapman s n* (M) DE SOTO CO Ft. Ogden, Mar 31, 1905, *Eaton 1444* (G, NY) ; scrub ridge s of Frost Proof, April 18, 1920, *Small and DeWinkeler 9584* (N). DUVAL CO Jacksonville, Aug 17, 1899, *Pieters 38* (N) ; dry pine barrens near Jacksonville, Aug 6, 1894, *Curtiss 5168* (G, N, M, PA, NY, UC). GADSDEN CO sandy pine barrens, Aspalaga, Oct., 1897, *Chapman 2472* (G, M, N, NY) LAKE CO high pine land, Eustis, June 1-15, 1894, *Nash 960* (M, G, N, NY), Eustis, June 16, 1930, *Nash 2002* (N, NY, P) LEON CO : Tallahassee, summer, *Berg s n* (NY) LEVY CO Oct., 1877, *Garber s n* (G, N, PA) ORANGE CO Forest City, June 26, 1894, *Lewton s n* (NY) MADISON CO June-July, 1898, *Hitchcock s n* (M) NASSAU CO in high pine land St. Marys River, Oct 13, 1929, *O'Neill, H s n* (N) PUTNAM CO Crescent City, Jan 12, 1880, *Martin s n* (M, PA) ST JOHN CO pine barrens, St Augustine, July-Oct., 1875, *Reynolds 10259* (M, NY) SUMTER CO Lake Astabula, March, 1879, *Smith, J D s n* (N) SUWANNEE CO dry, open sandy oak-pine woods, 5 mi w of Lave Oak, Aug 1, 1927, *Wiegand and Manning 3463* (G) WAKULLA CO . among pines between St. Marks and Shellpoint, July, 1843, *Rugel s n* (M, NY).

ALABAMA AUTAUGA CO . Prattville, June 14, 1874, *Smith, J A s n* (N). HOUSTON CO dry, sand-clay roadside, 16 mi s of Dothan, Aug 9, 1927, *Wiegand and Manning 3464* (G) LEE CO . Auburn, Oct 8, 1898, *Earle and Baker s n* (M, N, RM, NY), common, dry, sandy woods and open places, Auburn, Sept. 27, 1899, *Earle and Earle s n* (G, M, N, RM, NY) MOBILE CO Mobile, Sept 1860, *Mohr s n* (N), in woods, Spring Hill, Aug 9, 1897, *Bush 134* (M, N, NY). MONTGOMERY CO old fields, Aug 26, 1885, *Smith, J D 447* (N) TALLAPOOSA CO . Aug 21, 1897, *Earle s n* (NY).

LOUISIANA ACADIA CO prairies, Crowley, April 15, 1911, *Cocks s n* (NY) BOSSIER CO Shreveport, July, 1904, *Cocks 1907* (N) CALCASIEU CO . low prairies, Jennings, May 15, 1915, *Palmer 7617* (M, N, NY) ; on small sandy knolls in prairie, near Holmwood, July 18, 1938, *Correll and Correll 9579* (NY) NATCHITOCHES CO sandy, long-leaf pine lands, Natchitoches, Oct 3, 1915, *Palmer 8804* (M, N, NY) RAPIDES CO pine barrens, Alexandria, Oct., 1912, *Cocks s n* (NY)

SOUTH CAROLINA AIKEN CO Aiken, Sept 12-15, 1909, *Eggleston 5046* (G, M, N, PA, NY), Red Hill, n of Augusta, June 28, 1895, *Ward, s n* (N) HIBB CO : sandy ridges, 5 mi from Macon, Ga., Sept 4, 1883, *Smith J D s n* (G, N).

GEORGIA. LEE CO dry sandy roadside, Aug 2, 1901, *Harper 1152* (G, M, N, NY)

MISSISSIPPI. LAUDERDALE CO Meridian, Oct 10, 1896, *Schuchert s n* (N, NY). WAYNE CO . Waynesboro, Aug. 8-9, 1896, *Pollard 1253* (M, N, NY)

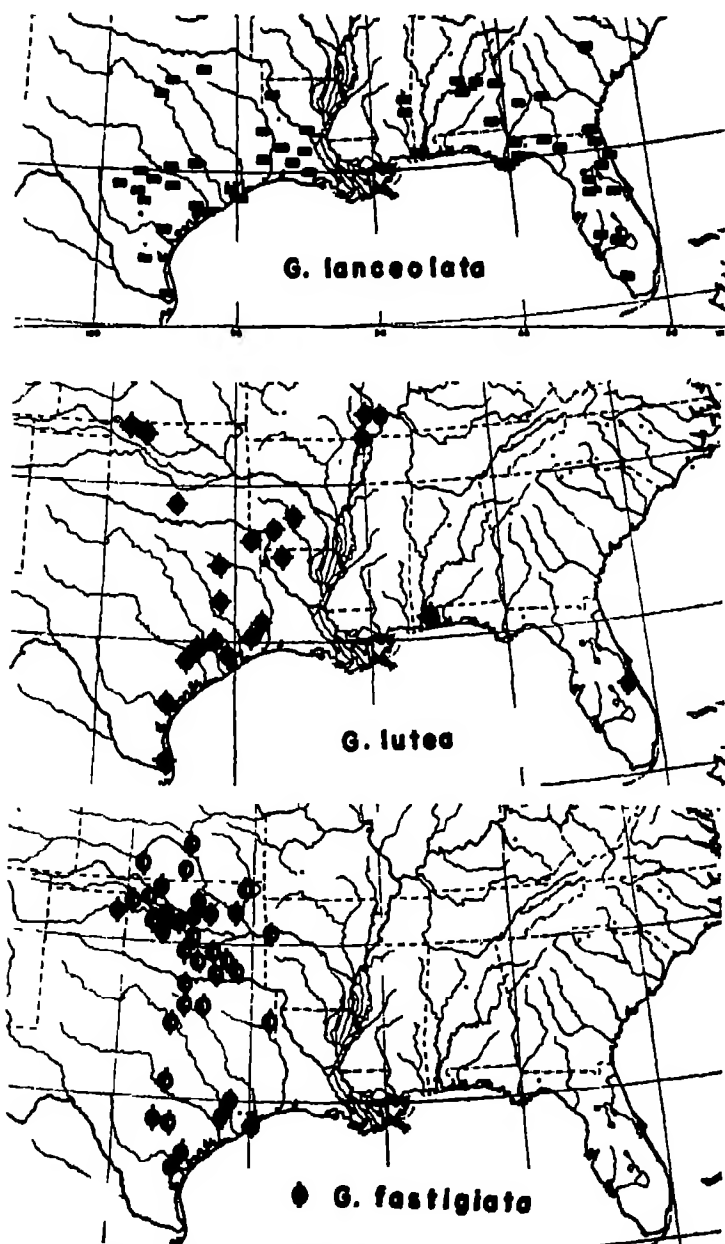


Fig. 7. Collection stations for *Gaillardia lanceolata*, *G. lutea*, and *G. fastigiata*.

17. *Gaillardia fastigiata* Greene in Pittonia 5: 57. 1902.*G. fastigiata* Small Fl. S. E. U. S. p. 1293. 1903*G. rigida* Small ex Rydb. in N. Am. Fl. 34^o. 135. 1915.

Perennial; stem usually rigid, branching toward the top, the branches erect, 3-6 dm. high, leaves sessile, linear-oblong or oblanceolate, acute, entire or coarsely dentate, glandular-punctate and covered with short moniliform hairs; peduncle 4-8 cm. long; involucre bracts acute or acuminate, 8-12 mm. long, covered with short moniliform hairs; setae of the receptacle short, weak, flattened; ray flowers neutral; ligules yellow or occasionally reddish at the base, trifid and tapering into slender bases, 10-15 mm. long; disk 18-25 mm. broad; disk corollas cylindro-campanulate with caudate-acuminate lobes covered with moniliform hairs, brown or dark purple; achenes 2 mm. long, hairy from the base only, but the hairs almost covering the body; pappus scales lanceolate tapering into an awn longer than the body, body and awn 5-6 mm. long.

Type: Sapulpa, Oklahoma, Oct. 6, 1894, B. F. Bush, 324.

DISTRIBUTION: The oak-hickory & tall-grass associations of southern Kansas, Oklahoma and Texas to the Gulf of Mexico (See Fig. 7)

Specimens examined: KANSAS HARPER CO. sandy soil, 1896, *Hitchcock* 739 (G, M, N, RM, NY); along road 2 mi. w. of town, Anthony, July 4, 1929, *Rydborg & Imler* 615 (M, NY). KIOWA CO. near Belvidere, Sept. 14, 1897, *Ward* s. n. (N) RENO CO. Medora, Aug. 7, 1929, *Benke* 5182 (G, N)

TEXAS. ATASCOSA CO. sandy open ground, Pleasanton, May 16, 1916, *Palmer* 9758 (M) BEXAR CO. sandy loam, s. of San Antonio, Nov. 2, 1930, *Mets* 75 (NY). CUSTER CO. Weatherford, May 31, 1902, *Tracy* 7895 (G, M, N, NY) DALLAS CO.: sands, Dallas, July, 1877, *Reverchon* s. n. (NY), sands, Dallas, 1882, *Reverchon* 323 (M); Dallas, June 16, 1898, *Glatfelter* s. n. (M); sandy ground, Dallas, June 26, 1899, *Eggert* s. n. (M); sandy ground, South Dallas, June 27, 1899, *Eggert* s. n. (M); Dallas, Oct. 27, 1900, *Bush* 1612 (M, N, NY), dry prairies near Dallas, July 9, 1929, *Stephenson* 127 (N). GALVESTON CO. prairies near the coast, Galveston Bay, July, 1842, *Lindheimer* s. n. (M) GUADALUPE CO. sandy open ground, Kingsbury, April 23, 1917, *Palmer* 11648 (M, N, UC, NY). HEMPHILL CO. prairies near Canadian, Aug. 10, 1900, *Eggert* s. n. (M); 6.7 mi. n. e. of Canadian, Sept. 28, 1935, *Cory* 16274 (G) HOOD CO. dry calcareous soil, Comanche Peak, near Granbury, Sept. 16, 1914, *Palmer* 6551 (M, UC, P). NUKES CO. near Corpus Christi, March, 1894, *Heller* s. n. (NY) TARRANT CO. sandy woods, June, 1882, *Reverchon* 523 (M, N); sandy woods, near Fort Worth, June 1884, *Reverchon* 1371 (M, NY); in open woods at Lake Worth, Oct. 8, 1918, *Ruth* 704 (N, NY); in dry woods at Lake Worth, Sept. 4, 1919, *Ruth* 782 (G, N). TRAVIS CO.: S. Felipe de Austin, Jan., 1835, *Drummond* 140 (G, NY). UPSHUR CO.: sandy open

ground, near Big Sandy, Sept. 27, 1926, *Palmer 31766* (M). VICTORIA CO.: prairies near Victoria, April 11, 1900, *Eggert s. n.* (M) WALLER CO.: dry prairies, Hempstead, June 12, 1872, *Hall 354* (N, NY, G. P). WICHITA CO.: Red River above Burkburnett, July 21, 1921, *Thorp 509* (NY).

OKLAHOMA ATOKA CO.: prairie knolls, Limestone Gap, July 4, 1877, *Butler 9* (M); same data, *Butler 15* (M); same data, *Butler 58* (PA, P); prairie hills, 10 mi. n. of Limestone Gap, July 4, 1877, *Butler 11160* (M) BLAINE CO.: waste places, Longdale, June 9, 1913, *Stevens 819* (G, M, N, NY) BRYAN CO.: moist soil, June 28, 1932, *Blain 322* (N). CADDO CO.: at base of Keechie Hills, June 30, 1903, *VanVleet s. n.* (M), top of South Canyon, Sept. 27, 1936, *Little 3887* (G). CHOCTAW CO.: sandy roadside, Grant, June 3, 1916, *Houghton 4012* (G, M, NY); open banks, limestone prairies, near Hugo, Oct. 7, 1923, *Palmer 24064* (M). CLEVELAND CO.: Canadian River, Sept. 20, 1914, *Emig 351* (M, N); flats, 6 mi. n.w. of Norman, Aug. 20, 1924, *Bruner s. n.* (N); 3 mi. e. of Norman, June 26, 1936, *Hoirington 48* (PA) CRAIG CO.: Vinita, July 15, 1880, *Letterman s. n.* (NY). CREEK CO.: Sapulpa, Oct. 1, 1894, *Bush 324* (G, M type coll.); Sapulpa, Oct. 6, 1894, *Bush 326* (G, M, N, NY) ELLIS CO.: in sandy soil, Wolf Creek Valley, Shattuck, Oct. 11, 1913, *Stevens 2931* (G) LINCOLN CO.: Fouta, July 23, 1895, *Blankinship s. n.* (N) LOGAN CO.: June 18, 1900, *White s. n.* (RM); at base of sandstone bank, Guthrie, June 10, 1914, *Stevens 3215* (G, M, N); along base of sandstone hill, Guthrie, July 16, 1916, *Keyser 6057* (NY). HAYES CO.: dry hillside pasture, Adair, Sept. 2, 1913, *Stevens 2579* (G, M) MCCLAIN CO.: rolling prairie, Blanchard, June 30, 1936, *Demaree 13186* (PA, NY), prairie, Blanchard, June 25, 1937, *Barkley 1360* (M) MURRAY CO.: Arbuckle Mts., near Davis, July 5, 1917, *Emig 746a* (M) MUSKOGEE CO.: Muskogee, July, 1880, *Letterman s. n.* (M, N); 2 mi. w. of Muskogee, Sept. 25, 1896, *Ward 9* (N, NY) OKLAHOMA CO.: Oklahoma City, July, 1892, *Shimek s. n.* (M); dry open ground, Oklahoma City, Oct. 5, 1918, *Palmer 14611* (N, M); clay soil, sandstone hillside prairie, 4 mi. n. of Edmond, June 28, 1940, *Waterfall 2217* (G) PAYNE CO.: sandy woods, Aug. 1893, *Olive 138* (NY), Stillwater, June 15, 1896, *Morris s. n.* (NY); clay soil, 2 mi. n. of Stillwater, June 19, 1937, *McAlister 82* (PA) PITTSBURG CO.: sandy open ground, McAlister, Sept. 6, 1914, *Palmer 6410* (M, N, P) PONTOTOC CO.: gravelly soil, 5 mi. w. of Stonewall, July 12, 1891, *Sheldon 129* (N) ROGERS CO.: Catale, May 22, 1895, *Bush 1133* (M) WOODS CO.: sandy waste places, Fairvalley, July 15, 1913, *Stevens 1715* (G, M, N); sandy loam, Woodward, Aug. 14, 1931, *Locke 16* (N).

ARKANSAS SEBASTIAN CO.: prairies, Fort Smith, June 30, 1853, *Bigelow 219* (N, NY).

18. *Gaillardia lutea* Greene in *Pittonia* 5: 57. 1902.

? *G. lanceolata flavovirens* C. Mohr in Contr. U.S. Nat. Herb. 6: 812. 1901.
G. chrysanth Small, Fl. S. E. U.S. p. 1293. 1903.

Perennial; stem more slender than the former and usually not so rigid, branching toward the top, the branches erect, 3-6 dm. high; leaves sessile, linear-oblong or oblanceolate, acute, toothed or some-

times entire, glandular punctate and covered with short moniliform hairs; peduncle 4-8 cm. long; involucre bracts acute or acuminate, 8-12 mm. long, covered with short moniliform hairs, setae of the receptacle short, weak, flattened; ray flowers neutral; ligules yellow, trifid and tapering into slender bases, 10-15 mm. long; disk 18-25 mm. broad; disk corollas cylindro-campanulate with caudate acuminate lobes covered with moniliform hairs, yellow, achenes 2 mm. long, hairy from the base only, but the hairs almost covering the body; pappus scales lanceolate tapering into an awn longer than the body, the body and awn 5-6 mm. long.

Type: Malden, Missouri, Aug. 21, 1894, B. F. Bush, 177

A white form (with white rays and white disk) belonging to this general group grows in Hardin Co., Texas (V. L. Cory and P. A. Winkler, personal communication). In the garden it appears to be simply a form with some sort of genic disturbance. Because *G. lutea* has also been collected in Hardin County, the "white *Gaillardia*" may be only an albino form of that species.

DISTRIBUTION The oak-pine woods from southeastern Missouri across southwestern Arkansas and eastern Texas to the Gulf of Mexico with scattered collections in Oklahoma, southern Alabama and Florida. (See Fig 7)

Specimens examined MISSOURI DUNKLIN CO Malden, Aug 21, 1894, Bush 177 (NY, M, G, WS type) SCOTT CO : Morley, Oct 8, 1893, Eggert s n (N, M, NY, UC, RM).

TEXAS AUSTIN CO near New Ulm, Aug 26, 1895, Wurslow s n (N, NY), Sealy, May 6, 1936, Fisher 3645 (N). BOWIE CO near Texarkana, alt 300 ft., Sept. 3, 1898, Heller and Heller 4203 (N, NY, M, G, P), dry hills near Polk, June 13, 1898, Eggert s n. (M, NY) BRAZORIA CO 6½ mi w of Alvin, Oct. 8, 1934, Cory 11449 (G); prairie, 12 mi s of Alvin, Dec 6, 1918, Hanson s n (NY) CAMERON CO estuary near Brownsville, Aug 1-5, 1921, Ferris and Duncan 3107 (NY, M) CASS CO . sandy, open woods, near Atlanta, May 11, 1925, Palmer 27153 (NY, M) HARDIN CO 5 mi. s of Silsbee, Sept 15, 1936, Cory 20067 (G); sandy, open wood, Fletcher, Sept 10, 1916, Palmer 10659 (M) COLORADO CO . Columbus, June 11, 1910, Rusby s n (NY) HOUSTON CO Grapeland, June 8, 1920, Tharp 928 (G, N), sandy, open woods, Grapeland, Sept 22, 1917, Palmer 12833 (G, NY, M). NEWTON CO 21 mi n of Deweyville, Oct 4, 1934, Cory 11001 (G). SAN PATRICIO CO 2½ mi n e of Calallen, Sept 21, 1936, Cory 20682 (G). WALLER CO . sandy prairie, Hempstead, April 30, 1872, Hall 352 (G, M, N, NY, P).

OKLAHOMA. MAJOR CO : Cleo, July 11, 1899, White 256 (M) MURRAY CO . Platt National Park, Sulphur, May 31, 1935, Merrill 540 (NY) WOODS CO . in sandy pasture, Flagg, May 27, 1914, Stevens 3070 (NY)

ILLINOIS. ALEXANDER CO.: Cairo, Sept. 9, 1874, *Kuntze* 2868 (NY).

ARKANSAS. HEMPSTEAD CO.: sandy, open woods, Washington, Sept. 4, 1916, *Palmer* 10596 (N, M); HOT SPRINGS CO.: sandy, open hillsides, Malvern, June 23, 1915, *Palmer* 8121 (N, M, NY).

ALABAMA. BALDWIN CO.: dry pine barrens, Bear Creek, June 18, 1893, *Mohr* s. n. (N).

FLORIDA. BREVARD CO.: scrub oak land, Okeechochee, June 16, 1903, *Fredholm* 5855 (M, G, N).

EXCLUDED NAMES

Gaillardia amara Raf., Fl. Ludov. 69. 1817. *Nomen dubium*.

Gaillardia acaulis Pursh, Fl. Am. Sept. 2: 743. 1814.—Is *Actinella acaulis*

Gaillardia glauca Baill., Hist. Pl. 8: 307. 1878.—Is *Cephalophora glauca*.

Gaillardia aromatica Baill., Hist. Pl. 8: 307. 1878.—Is *Cephalophora aromatica*.

Gaillardia gauroides Greene in Gulf Biol. Sta. Bull. 7: 40. 1907. *Nomen subnudum*.

Gaillardia fimbriata Michx., Fl. Bor. Am. 2: 142. 1803.—Is *Helenium fimbriatum*

Gaillardia roemeriana Scheele in Linnæa 22: 161. 1849.—Is *Actinella scaposa*.

Gaillardia grandiflora Van Houtte in Fl. Serres 12: 1. 1857. — A garden hybrid.

LITERATURE CITED

Adams, C. C. 1902. Southeastern United States as a center of distribution of flora and fauna. Biol. Bull. 3: 115-31.

———. 1905. The postglacial dispersal of the North American biota. Biol. Bull. 9: 53-71.

———. 1909. The Coleoptera of Isle Royale, Lake Superior, and their relation to the North American centers of dispersal. Ecol. Surv. Isle Royale. Mich. Geol. Rept. 1908: 157-215.

Atwood, S. 1937. The last premeiotic mitosis and its relation to meiosis in *Gaillardia*. Proc. Nat. Acad. Sci. 23: 1-5.

Bailey, L. H. 1941. The Standard Cyclopedia of Horticulture. New York.

Bentham, G. and J. D. Hooker. 1873. Genera Plantarum 2: 167, 203.

Cain, S.A. 1943. Criteria for the indication of center of origin in plant geographical studies. Torreya. 43: 132-54.

Cooper, D. C. and J. L. Mahoney 1935. Cytological observations on certain Compositae. Amer. Jour. Bot. 22: 843-47.

Fougereux, de Bondaroy, 1786. Contenant la description d'un nouveau genre de plante. Obs. sur La Physique. 29: 55.

———. 1788. Description d'un nouveau genre de plante. Mem. Math. et Phys., Acad. Sci. Par. p. 5.

Gay, J. 1839, *Gaillardia Amblyodon*. Ann. des Sci. Nat. Ser. 2. 12: 62.

Gray, A. 1884. Synoptical Flora of North America 1: 72-77, 351-53. New York.

Gray, A. and G. Engelmann. 1847. Compositae from Texas. Proc. Amer. Acad. Arts and Sci. 1: 49.

——— and ———. 1850. *Agassisia*. Bost. Jour. Nat. Hist. 6: 229.

Greene, E. L. 1897. New southwestern Compositae. Bull. Torr. Bot. Club 24: 512.

———. 1899. Reprint of Fraser's catalog. Pittonia 2: 119.

- . 1902. A fascicle of new Compositae. *Pittonia* 5: 57.
- Hooker, J. D. 1834. *Bot. Mag.* 1: 3368.
- . 1837. *Bot. Mag.* 1: 3551.
- Johansen, D. A. 1932. A new method of differentiating gentian violet when used as a somatic chromosome stain. *Stain Tech* 7: 17-20.
- . 1937-38. Tertiary butyl alcohol methods. *El Palo Alto News* 1: 1-2, 5-6, 13-14, 21-22; 2: 1-4.
- Johnston, I. M. 1941. Gypsophily among Mexican desert plants. *Jour. Arn. Arb.* 22: 145-70.
- Meehan, T. 1898. The plants of the Lewis and Clarke's expedition across the continent, 1804-1806. *Proc. Acad. Nat. Sci. Phil* 50: 33.
- Micheaux, A. 1803. *Flora Boreali-Americana* 2: 142. Paris.
- Morinaga, T., E. Fukushima, T. Kano, Y. Maruyama and Y. Yamasaki. 1929. Chromosome numbers of cultivated plants. II. *Bot. Mag. Tokyo* 43: 589-594.
- Rodgers, A. D. 1942. John Torrey, A Story of North American Botany. Princeton Univ. Press.
- Rydberg, P. A. 1915. *Carduaceae*. in *North American Flora* 34¹: 2; 34²: 119, 131-41.
- Small, J. K. 1903. *Flora of the Southeastern United States*. N.Y. Bot. Gard.
- Smith, J. E. 1804. *Virgilia helioides*. *Exotic Bot.* 1: 71.
- Sprengel, K. 1826. *Caroli Linnaei Systema Vegetabilium*. 3: 356, 449.
- Torrey, J. 1828. Some account of a collection of plants made during a journey to and from the Rocky Mountains in the summer of 1820, by Edwin P. James, *Ann. Lyc. N. Y.* 2: 214.

PLATE I

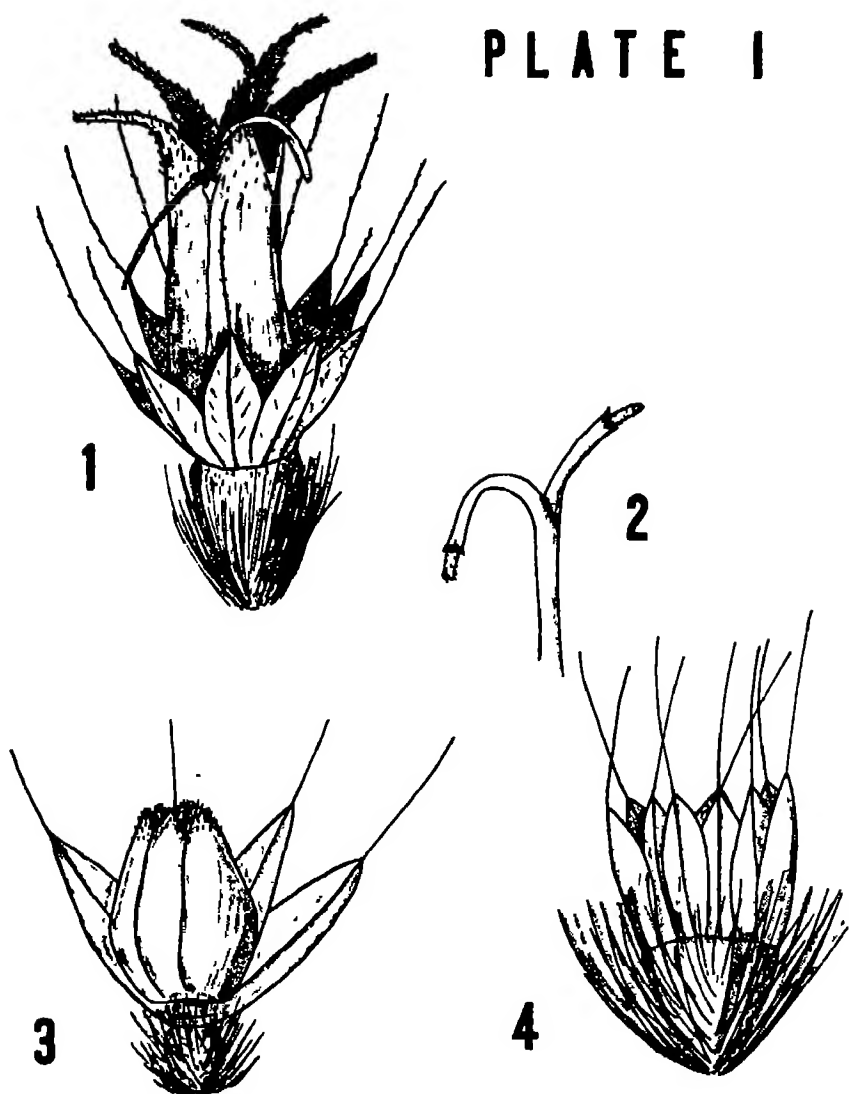


Fig. 1. *Gaillardia lanceolata* Michx.

Fig. 1. Disk flower, $\times 8$.

Figs. 2-4. *Gaillardia suaveas* (Gray and Engelm.) Britton and Rusby

Fig. 2. Style, $\times 4.9$.

Fig. 3. Disk flower, $\times 3.5$.

Fig. 4. Fruit, $\times 6$.

PLATE II

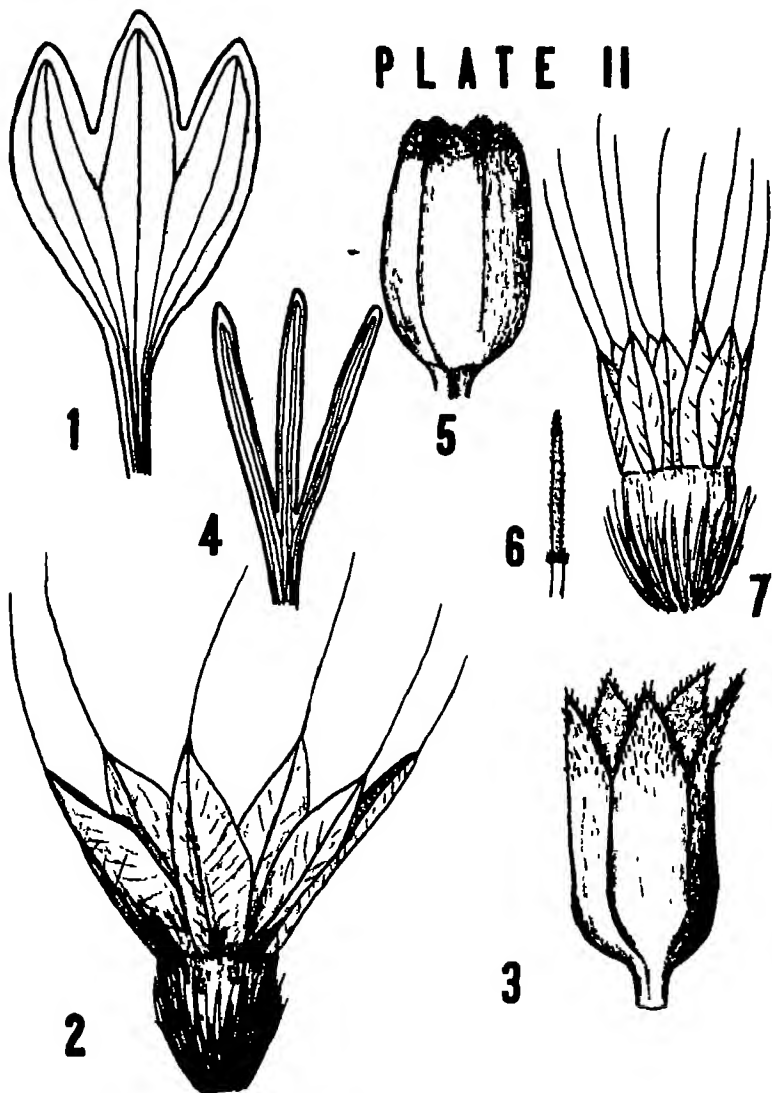
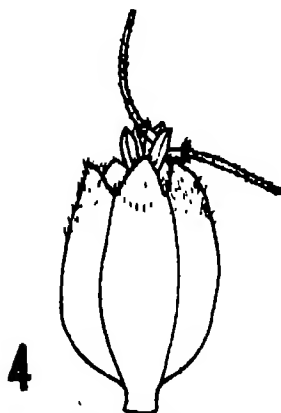
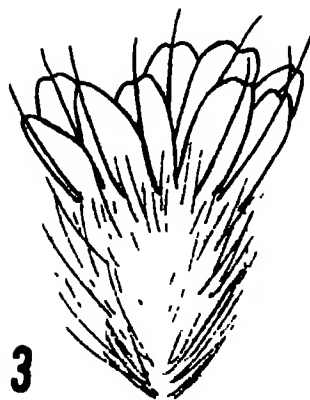
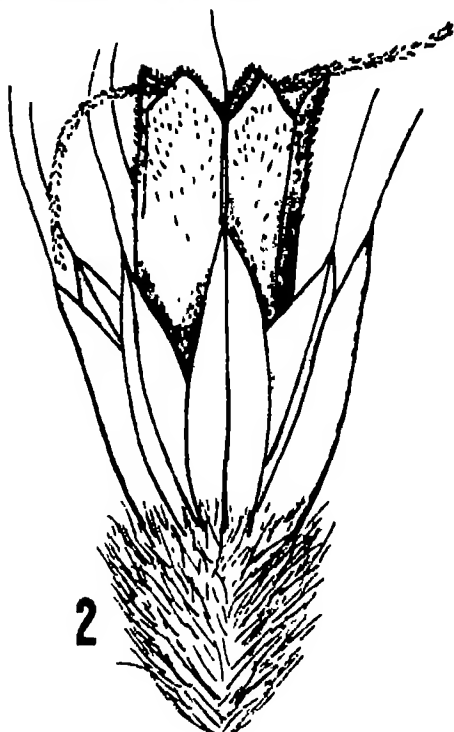
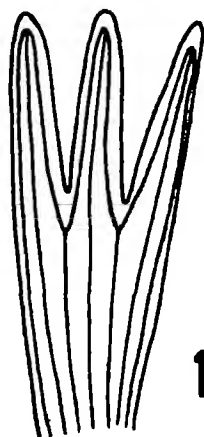
Figs. 1-3. *Gaillardia pulchella* FougFig. 1. Ray, $\times 2.9$ Fig. 2. Fruit, $\times 15$ Fig. 3. Disk corolla, $\times 10.4$ Figs. 4-7. *Gaillardia mexicana* var. *trifida* S BiddulphFig. 4. Ray, $\times 2.2$ Fig. 5. Disk corolla, $\times 7.5$ Fig. 6. Style branch, $\times 12$.Fig. 7. Fruit, $\times 7.5$.

PLATE III

Figs. 1-2 *Gaillardia pinnatifida* Torr.Fig. 1. Ray, $\times 5.7$.Fig. 2. Disk flower, $\times 8.1$.Figs. 3-4. *Gaillardia arisonica* GrayFig. 3. Fruit, $\times 9.4$.Fig. 4. Disk flower, $\times 12$.

CHARLES DE FREYCINET, FRENCH EMPIRE BUILDER

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The young Third Republic during the 1880's added vast territories in Africa and Asia to the French colonial empire. These considerable acquisitions were carried through by a few men who were convinced, in spite of popular apathy, uncertainty, and distrust of a colonial program, that overseas colonies were a political and an economic necessity to a France recovering from the *recueillement* of the 1870's and asserting anew its place as a major power.¹

In their accounts of this French imperialism, historians generally have given credit to one French leader—Jules Ferry. He was, they say, "responsible for the . . . French colonial conquests," "the great proponent of overseas expansion, . . . the founder of the modern French colonial empire," "a master of imperialist logic, . . . the apostle of the . . . colonial renaissance," "the greatest French imperialist, the man who . . . acquired the empire." Others connected with the colonial expansion are represented as Ferry's supporters and successors, and even thus they are briefly mentioned or—more often—ignored.² Unmistakably, the impression is given that Ferry was the one French statesman of significance who promoted this era of empire building.³

To be sure, Ferry was the chief modern French imperialist, but, whatever the reason for the concentration of attention on him, it is, like so many historical simplifications, not wholly correct. Other men were more than "disciples" of Ferry, and others should share in the credit for the expansion of France. Conspicuous among them, but little

¹For the motives behind this French imperialism, see J. B. Wolf, *France 1815 to the Present* (New York, 1940), 468-69; M. E. Townsend, *European Colonial Expansion since 1871* (New York, 1941), 113-14; E. M. Carroll, *French Public Opinion and Foreign Affairs 1870-1914* (New York, 1931), 84-86.

²Wolf, *op cit.*, 395, 469-71; Townsend, *op cit.*, 57, 127, 133; Carroll, *op cit.*, 84-108; E. A. Vizetelly, *Republican France* (London, 1912), 238-43, 284-90; P. T. Moon, *Imperialism and World Politics* (New York, 1926), 43-46, 194-95, 316, 543; R. Recouly, *The Third Republic* (New York, 1928), 132-73; W. L. Langer, *European Alliances and Alignments* (New York, 1931), 286; D. W. Brogan, *France under the Republic* (New York, 1940), 224-46; C. J. H. Hayes, *A Generation of Materialism* (New York, 1941), 231-32; J. Stern, *The French Colonies* (New York, 1944), 112; T. F. Power, *Jules Ferry and the Renaissance of French Imperialism* (New York, 1944), 2.

³E.g., J. E. Gillespie, *Europe in Perspective* (New York, 1942), 520: "Among prominent republican politicians only Jules Ferry (1832-1893) was a staunch advocate of imperialism".

recognized by historians,⁴ is Charles de Freycinet.⁵ Freycinet was France's Minister of Foreign Affairs—and thus the immediate director of the imperial expansion—longer than any other minister of the 1880's, including Ferry (Freycinet, thirty-six months in 1880, 1882, 1885-86; Ferry, sixteen and a half months in 1883-85).⁶ Freycinet, however, has received small acknowledgment for any part of his service as French Foreign Minister. He is remembered as Gambetta's lieutenant in the dark days of 1870-71; he is cited for his large-scale program of public works and of state promotion of railroad and canal building as Minister of Public Works (1877-79); he is applauded for his definitive reforms in the French army when he was Minister of War in five successive cabinets (1888-93); he is acknowledged as primarily responsible for the final accomplishment of the Franco-Russian alliance when he was Premier in 1890-92. Yet, of his service at the Quai d'Orsay in the early and middle 1880's, historians remember only that Freycinet was Foreign Minister when "the irreparable error of 1882"—the failure of France to act with Britain in intervention in Egypt—was committed,⁷ and this blinds them to the several real accomplishments of

⁴The single exception by an historian writing in English is F. L. Schuman's *War and Diplomacy in the French Republic* (New York, 1931), which gives fair—if brief and incomplete—recognition of Freycinet's role in the acquisition of Tunis (p. 58), Indo-China (pp. 80-81), and Madagascar (pp. 106-07, 113-18). Schuman's account is based on the *Livres Jaunes*, on Freycinet's *Souvenirs*, and on the basic French diplomatic histories of Despagne, Hippeau, and Debidour. Much more complete appraisal of Freycinet's part is now possible with the publication of the *Documents diplomatiques français 1871-1914*, Série Ier, 1871-1900 (Paris, 1929-38), by the Commission de publication des documents relatifs aux origines de la Guerre de 1914.

⁵Charles Louis de Saulces de Freycinet (1827-1923) Prefect of Tarn-et-Garonne, head of the military cabinet of the Government of National Defense, 1870-71. Elected to the Senate, 1876. Minister of Public Works, 1877-79. Premier and Foreign Minister, 1879-80, 1882, 1886. Foreign Minister, 1885. Minister of War, 1888-93. Premier, 1890-92. Minister of War, 1898-99. Minister without portfolio, 1915-16.

⁶Ferry was Premier of France for thirty-nine months (1880-81, 1883-85), and, when he was not himself Foreign Minister, he did exercise much control over St. Hilaire and Challeml-Lacour, who were at the Quai d'Orsay, and thus he influenced colonial policy.

⁷Typical are E. Hippeau, *Histoire diplomatique de la troisième république 1870-1889* (Paris, 1889), 414; F. Despagne, *La diplomatie de la troisième république et le droit des gens* (Paris, 1904), 300; A. Debidour, *Histoire diplomatique de l'Europe* (Paris, 1919), 544-45; J. Buchan, *France* (London, 1923), 132, 137-38; R. Pinon, *Histoire diplomatique* (Paris, 1929), 574; R. Recouly, *De Bismarck à Poincaré* (Paris, 1932), 142; B. E. Nolde, *L'alliance franco-russe* (Paris, 1936), 87, 351; G. Bruun, *Clemenceau* (Cambridge, 1943), 43; Brogan, *op. cit.*, 146; Stern, *op. cit.*, 105, 134. More favorable appraisal of Freycinet as a diplomat is found; however, among his associates and those especially close to events: e.g., Charles

this period of his career.⁸ One of these achievements was in the colonial field. Freycinet protected established French interests in overseas areas; he laid foundations from which others effected major enlargements of the French empire; he undertook important expansion himself, and, especially in 1885-86, when the very being of the overseas empire was at stake, he maintained it intact and he organized its most significant parts, defining and stabilizing their relations with France.

General historical opinion has held, with Langer, that "In the history of the second French colonial empire the name of Ferry looms far above that of . . . Freycinet."⁹ However, the great French colonial scholar, prolific writer, and *directeur de l'Ecole Coloniale*, Georges Hardy, assesses Freycinet's role more substantially. He writes,

Trois personnalités, notamment, dominent cette période [the 1880's] : Jules Ferry, l'amiral Jauréguiberry,¹⁰ M de Freycinet . . . C'est une véritable renaissance coloniale qui commence avec eux, et la France leur doit d'être devenue la deuxième puissance coloniale du monde . . . Malgré tant difficultés et de risques, la chute de Jules Ferry [1885] n'entraîne nullement outre-mer un abandon des entreprises. . . M de Freycinet avaient été étroitement associés à l'oeuvre de Jules Ferry . . . [et] aux audaces et aux vastes plans de Ferry vont succéder des mesures plus modestes, une politique de développement prudent et de consolidation, qui n'en fut pas moins féconde.¹¹

The purpose of this study is to show that Freycinet deserves recognition such as Hardy has given him for a very significant part in the development of the French colonial empire.

de Moüy, *Souvenirs et causeries d'un diplomate* (Paris, 1909), 233-34; A. Gérard, *Mémoires: Vie d'un diplomate sous la troisième république* (Paris, 1928), 95; R. Goblet, "Souvenirs de ma vie politique," *Revue politique et parlementaire*, CXXVIII (1929), 362-63.

⁸In Europe, Freycinet's main accomplishment was the careful moving of France away from the diplomatic *recueillement*. His orientation away from Germany and towards Russia in 1886 was definitive for France. See this writer's "France and the Balkan Crisis of 1885-86," *Research Studies of the State College of Washington*, XI (1943), 283-99.

⁹W. L. Langer, "The European Powers and the French Occupation of Tunis, 1878-1881," *The American Historical Review*, XXXI (1925-26), 256.

¹⁰Admiral Jauréguiberry was the active agent of others in the colonial expansion. He was Minister of Marine and Colonies in the Waddington (1879), Freycinet (1879-80, 1882), Duclerc (1882-83), and Fallières (1883) ministries.

¹¹*Histoire de la colonisation française* (Paris, 1928), 228, 242-43. H. I. Priestley, in his *France Overseas* (New York, 1938), 119, also calls Ferry, Jauréguiberry, and Freycinet a trio of "remarkable imperialists." His judgment, however, is based directly on Hardy.

I. North Africa.

In his first period as Foreign Minister (in 1880), Freycinet successfully defended French interests in Morocco—a land destined to become a part of the French African empire three decades later—against a serious attempt to destroy the established French position. Like the German strategy in 1905-06, this challenge to France took the form of an international conference for consideration of the privileges enjoyed by foreigners in Morocco. Chief among these was extension of foreign protection to Moroccan natives as "agents" of European diplomatic representatives, consuls, or merchants; these favored natives, called *censaux*, were thereby removed from Moroccan legal jurisdiction and relieved from payment of land taxes. All the western European states had the right to name *censaux*, but the Franco-Moorish convention of 1863 had allowed France an especially advantageous position, and the large number of French merchants in Morocco had meant extensive exercise of the privilege.¹² The Moroccan government, claiming that the system of native protection lacked uniformity and that the *censaux* privilege was being indiscriminately granted, had for long been pressing for revision. Spain and Great Britain, seeking to weaken the French position and correspondingly to strengthen their own in Morocco,¹³ brought the question before the powers in early 1880 and gained agreement to meet in conference at Madrid.¹⁴

Freycinet was well aware of the reasons for Spanish and British promotion of the conference.¹⁵ He was willing to rectify certain abuses—for example the *censaux* might pay the land taxes—but he was wholly unprepared to curtail any of the legally based privileges or to compromise in any way the flourishing French commercial position in Morocco.¹⁶ Before the meeting, moreover, he secured an all-important

¹²See H. C. M. Wendel, "The Protege System in Morocco," *Journal of Modern History*, II (1930), 49-55.

¹³In 1880, Spain was believed to have been the main support for the conference. Andre Daniel, *L'Année politique 1880* (Paris, 1881), 318-19; *Die grosse Politik der europäischen Kabinette 1871-1914* (hereinafter cited as *G.P.*), edited by J. Lepsius, A. Mendelssohn-Bartholdy, and F. Thimme (Berlin, 1922-27), III, No. 465. Earl Cruickshank, in a recent monograph, *Morocco at the Parting of the Ways: the story of native protection to 1885* (Philadelphia, 1935), 171, considers Britain the prime instigator.

¹⁴*Documents diplomatiques français 1871-1914, Série Ier* (hereinafter cited as *D.D.F.*), III, Nos. 48, 56, 99.

¹⁵*D.D.F.* III, No. 28. Ministère des affaires étrangères, *Livre Jaune* (hereinafter cited as *L.J.*), *Question de la protection diplomatique et consulaire au Maroc* (Paris, 1880), No. 7.

¹⁶*D.D.F.*, III, No. 116.

pledge from Berlin that the German delegate would support the French stand at Madrid.¹⁷

The Madrid Conference (May 20 to July 3, 1880)¹⁸ was a real battle for Freycinet. The opposing strategy was well conceived. The first two moves were tests of the strength of the French resolve to stand firm, and they were not too difficult to parry. The first (May 23) was Morocco's demand for abolition of the whole system of native protection; Freycinet instructed Admiral Jaurès, his conference delegate, to refuse "peremptorily" to consider such a proposition, and it was withdrawn. The second (June 1) was Britain's proposal for elaborate revision of the system and a drastic curtailment of the *censaux* privilege. Jaurès wrote Freycinet that he was no longer faced with Moroccan pleas but with an English scheme "to undermine our influence and to ruin our commerce in Morocco." Freycinet would have none of it, and, when the British realized he was inflexible, their plan too was withdrawn.¹⁹

The next move was more subtle. The Austrian delegation, playing the game for Fez, Madrid, and London, brought before the conference (June 6) a plan, which, though somewhat milder, embodied most of the British propositions, and which the conference voted to consider. Freycinet acted with dispatch. He told the Vienna and London governments that he could never agree to these proposals and that he would withdraw from the conference rather than consent to curtailing the *censaux* privileges. When Jaurès repeated this at Madrid (June 12) and the Moorish delegate announced at the same time that his government could not accept continuance of the *status quo* on native protection, an impasse apparently had been reached and the conference adjourned *sine die*.²⁰

Freycinet did not want this end to the conference. He realized now that he was in an excellent strategic position: while holding strictly

¹⁷The support from Bismarck was evidence of his conciliatory policy toward France which he followed from 1878 to 1885. Bismarck viewed Morocco as within "the natural sphere" of French activity, and support to France was to be given "without reservation." *D.D.F.*, III, Nos. 95, 97 *G.P.* III, Nos. 664, 665.

¹⁸All the European great powers except Russia were represented—also, Spain, Belgium, the Netherlands, Sweden-Norway, Denmark, Portugal, Brazil, the United States, and Morocco.

¹⁹*L.J., Question au Maroc*, Nos. 29, 30, 31. *D.D.F.*, III, No. 144. *British Parliamentary Papers* (hereinafter cited as *P.P.*), 1880. Command Paper 2707, No. 117.

²⁰*D.D.F.*, III, No. 155. *L.J., Question au Maroc*, Nos. 51, 51. *P.P.*, 1880. C. 2707, No. 117.

to legal ground but allowing establishment of a greater uniformity in the system and extending small concessions to the Moroccans, he could obtain recognition by the conference of the primary position of France in Morocco. With Berlin's aid, he prevailed upon Vienna to drop its proposals; he declared at Madrid that France would show "a spirit of moderation" if the conference would resume; and he sought successfully the intervention of several delegations to prevail upon the Moroccans to return to the conference. He let it be understood, however, that he demanded a specific declaration that the *censaux* privileges remained as established.²¹ When the conference reconvened (June 19), it adopted as an article of the proposed convention the statement, "Nothing is changed in regard to the *censaux* as defined by the treaties and the [Franco-Moorish] Convention of 1863, except that which will be stipulated relative to taxes . . ."²²

French satisfaction on this fundamental question allowed the conference to move speedily, and, on July 3, it concluded its work with the signature of the Madrid Convention.²³ By it, France's superior position in Morocco was underwritten by the very powers which had called the Madrid meeting to compromise it. The result was a flat check to Spanish and British policy. Freycinet had played a clever game and had won a signal success. To his ambassador in London, he wrote, "We can congratulate ourselves upon the sanction by agreement among the powers of the rights we set ourselves to defend."²⁴

The setting up of a French protectorate over Tunis by Jules Ferry in May, 1881, was the most decisive early success of the French

²¹*L.J., Question au Maroc*, Nos. 58, 60, 63, 65, 68.

²²*P.P.*, 1880. C. 2707, No. 122.

²³Text in *L.J., Question au Maroc*, pp. 271-78. Analysis in Wendel, *op. cit.*, 156-58. Cruickshank, *op. cit.*, 160-61, tells of an incident on which the French documents are silent. On June 27, 1880, a squadron of nine first-class French ironclads entered the bay at Tangier, Morocco, exchanged salutes, and departed. The American consul reported to his government that the act was France's reply to Moorish threats at Madrid about closing their ports to foreign commerce in retaliation for France's stand on the *censaux*. Cruickshank accepts this explanation and gives little credence to Freycinet's claim (to the British ambassador) that the ships had gone to Tangier "in execution of old orders." Yet Freycinet's explanation may be correct, for June 27—a week after France had won its point at the Madrid Conference—would hardly seem to have been the time for a naval demonstration which might have affected adversely France's case at Madrid. Cruickshank strains overzealously to make the Tangier action an answer to the breakdown of the Conference: he places his account of the June 27 happening directly after the Conference suspension of June 12; then he returns to the Conference, jumping back to June 19, and completes his discussion of its work.

²⁴*D.D.F.*, III, No. 198.

colonial policy in the '80's. Ferry's action was not precipitous; it was carefully prepared for during the preceding four years. In 1878, at the Congress of Berlin, Waddington had secured German and British agreement that Tunis was within the French sphere, and "to all intents and purposes, the question [of the future of Tunis] had been settled internationally in favor of France."²⁵ Paris had not acted at once because it had not wished to appear to be collecting a reward for French support to Britain at the Congress, because the situation in Tunis had not warranted immediate intervention, because Italy was strongly opposed, and because French public opinion was fearful and pacific.²⁶ Freycinet's part in making ready for the taking of the beylik was considerable. In 1880, he prepared directly for the incorporation of the territory into the French African empire. Freycinet was able to admonish his successor Ferry in September, 1880, "The fruit is ripe. . . . Pick it at the propitious moment."²⁷

One of Freycinet's tasks in 1880 was to parry Italian attempts to secure material concessions in Tunis, which, if successful in the degree the Italians hoped, would have put serious obstacles in the way of French plans. On July 8, 1880, the Italian Rubattino Company, backed by a subsidy from the Italian government, purchased from an English company the concession to build a railroad in Tunis from the city of Tunis to Goletta.²⁸ This purchase had been carried through in spite of Freycinet's warnings to the Bey of Tunis that France "would not approve" the railroad concession in other than French hands, and to Rome that "a very severe clash" might result if the Italian government promoted the Rubattino purchase.²⁹ Freycinet and his able agent in Tunis, the French consul-general Roustan, immediately sought from the Bey "a balancing concession" for France, a railroad line also from the city of Tunis to the sea and paralleling the Italian. Suddenly, in early August, Roustan reported that it was widely rumored that three Italian warships would arrive off Goletta. Freycinet, declaring that he was prepared to send a part of the Channel fleet if necessary, immediately dispatched three French cruisers to Tunisian waters. If there was any danger of an Italian naval demonstration—it may well have

²⁵Langer, *op. cit.*, 61-71, 254.

²⁶Despagnet, *op. cit.*, 220.

²⁷Charles de Freycinet, *Souvenirs 1878-1893* (Paris, 1914), 168.

²⁸*D.D.F.*, III, No. 213.

²⁹*D.D.F.*, III, No. 184.

been invented by Roustan—it was quickly dissipated by this French show of force, and the Bey hastily granted the railroad concession. Freycinet, well satisfied with the concession and with the opportunity to demonstrate to the Italians that Paris intended no compromise on Tunis, instructed Roustan to continue to hold firm “in defense of our rights,” and he promised energetic support from Paris.³⁰

At the same time, Freycinet was affirming French Tunisian claims through diplomatic channels. At Berlin, London, and Rome, he left no uncertainty as to French intentions. From Chancellor Bismarck and Prime Minister Gladstone, Freycinet sought confirmation of the 1878 pledges concerning Tunis. Bismarck was most categorical in his assurances: Tunis was “a natural prolongation” of French Algeria in which France should enjoy “absolutely incontestable preponderance”; and, as long as Franco-German relations were amicable, France could count on German moral backing where France’s “true and legitimate interests” were involved.³¹ London’s response was much less satisfactory. The Gladstone government, which had taken office in April, 1880, declared that there had been “some discrepancy” between the 1878 personal statements of Salisbury and that which was later promised officially in London, and, though France’s influence in Tunis was very great, the region was “an integral part of the Ottoman Empire” of which Britain had “no right, moral or international, to dispose.”³² Freycinet used strong words in London to recall the Salisbury pledge of 1878 and to assert flatly that Tunis was French; he said that France would not share its political preponderance in Tunis nor allow to be damaged its “*état de possession*.”³³ Yet Freycinet did not succeed in changing Gladstone’s stand, and it was mainly the British attitude which held Freycinet back from taking the final step in Tunis.³⁴

It was at Rome, where a forward policy on Tunis was inaugurated in early 1880, that Freycinet’s declarations were most vigorous. To Premier Cairoli, he described Tunis as “the natural annex and the military *entrée* to the French African possessions,” in fact, “*une terre comme française*,” in which France intended to have “exclusive interest.” He warned that an Italian policy which did not recognize this was

³⁰D.D.F., III, Nos. 230-40, 247. L.J., *Affaires de Tunisie 1870-1880*, Nos. 158, 160.

³¹D.D.F., III, Nos. 142, 158, 200.

³²D.D.F., III, Nos. 209, 225. P.P., 1881. C. 2886, No. 5.

³³D.D.F., III, Nos. 150, 159, 193.

³⁴Langer, *op. cit.*, 255-56.

"intolerable," "a direct attack upon legitimate [French] interests" from which "serious friction" would result. He stated that French annexation of Tunis was virtually being forced by Italy, and, if this did take place, he promised only to inform Rome and not to discuss the matter or to give aid in securing compensation for Italy.⁵⁵ By mid-summer, these words had their desired effect; Cairoli backed down completely. He told Freycinet then that he had no intention of compromising Franco-Italian relations over "paltry questions," and that he was seeking to protect Italian commercial interests in Tunis and not to challenge French political influence. Freycinet's agent in Rome guessed that Cairoli had tried, and failed, to interest Berlin and London in his cause, and, momentarily at least, Italy renounced its ambitions in Tunis.⁵⁶

In Tunis itself, Freycinet actually sought to establish a protectorate in May, 1880. On May 5, Freycinet through Roustan submitted to the Bey a draft treaty. By it, a French resident-adviser would be placed at the court of the Bey; France would control Tunisian foreign relations; French troops would occupy strategic points. Although Roustan told the Bey that France this time was seeking "more solid guarantees" than the usual platonic declarations of his "confidence" in France, the Bey refused the treaty, and Roustan urged Freycinet to make "military preparations on the frontier."⁵⁷ The documents do not mention the draft treaty again. Freycinet was not ready at this time to go beyond diplomatic pressure. In his memoirs, Freycinet states that he was about to order military intervention in Tunis to force acceptance of the protectorate when he fell from power in Paris.⁵⁸ It is possible that the naval demonstration in August⁵⁹ was intended to accomplish more than to gain a railroad concession and to meet an alleged Italian threat, and the quick capitulation of the Bey on the railroad may have spoiled

⁵⁵D.D.F., III, Nos. 104, 211, 214, 220. A. Lebon, "Les préliminaires du traité du Bardo," *Annales de l'école libre des sciences politiques*, VIII (1893), 409, 411-15. Ambassador Cialdini's reports to Rome claimed that Freycinet had promised Italy "cordial support in obtaining adequate and worthy compensation in the basin of the Mediterranean." T. Palamenghi-Crispi, *Memoirs of Francesco Crispi* (London, 1912), II, 107-08. Writers generally have accepted this account, which is not in line with Freycinet's report. (See, e.g., Langer, *op. cit.*, 255 n.)

⁵⁶D.D.F., III, Nos. 222, 241, 246.

⁵⁷D.D.F., III, Nos. 109, 110.

⁵⁸*Souvenirs*, 168. This has been generally accepted see Langer, *op. cit.*, 256; H. Hauser, *Histoire diplomatique de l'Europe* (Paris, 1929), 164; R. H. Wienefeld, *Franco-German Relations 1878-1885* (Baltimore, 1929), 87.

⁵⁹See above, p. 263.

a broader plan. It is probable too that, after the backdown of the Italians from their aggressive stand on Tunis, Freycinet believed the time had come for definite action.⁴⁰

If Freycinet failed in 1880 to establish a French protectorate in Tunis, the reasons were adequate. He was by nature cautious and reserved, and he was ready to take any action only after having provided for all contingences; the French parliament and people were quite unprepared for a military stroke⁴¹; British diplomatic support had cooled; and high-ranking French republicans were suspicious of Bismarck's backing.⁴² Nonetheless, it is a fact that Freycinet carefully and skilfully prepared the way for Ferry's acquisition of Tunis.

A third north African area of major importance to Freycinet was Egypt. In 1882, when he was at the Quai d'Orsay, France abstained from joint intervention with Britain in Egypt⁴³; and a deeply chagrined France, long the primary channel for Egyptian contacts with the west, watched the steady movement toward British military and political control of Egypt. In his 1885-86 period as Foreign Minister, he was, as he said, "determined to neglect no opportunity . . . to end a state of things established [in Egypt] in violation of international treaties."⁴⁴ The British ambassador rightly believed that Freycinet felt keenly the attacks upon his 1882 Egyptian policy and that he was "very anxious to gain for himself the credit of some striking success in getting England out of that country."⁴⁵ Difficult, tedious, and unavailing as this policy proved to be, he persisted in it, and, at no time during the many years of Anglo-French controversy over Egypt, were the British more aware

⁴⁰See above, p. 263, for his words to Ferry in September, 1880. It is impossible to inquire into this fully. There are no documents on Tunis in *D.D.F.* or *L.J.* for September, 1880. Nolde, *op. cit.*, 90, calls Freycinet's claim of intent to act "a vain attempt at rehabilitation."

⁴¹This element may be judged by the worried state of French opinion when Freycinet supported certain Greek territorial claims based on the Treaty of Berlin (1878). French public opinion refused to accept even a moderately advanced policy and forced Freycinet to abandon the Greeks. Carroll, *op. cit.*, 81-82. E. Driault and M. Lhéritier, *Histoire diplomatique de la Grèce de 1821 à nos jours* (Paris, 1926), IV, 84-85.

⁴²Gambetta and Grevy, especially, were suspicious of the German promises of support. P. Deschanel, *Gambetta* (Paris, 1920), 260-61.

⁴³An unfair proportion of the blame for the loss of Egypt has been laid upon Freycinet. His somewhat over-subtle plan for French action was upset by an uncomprehending French Chamber and public. See this writer's "Freycinet's Egyptian Policy in 1882," *The Historian*, IV (1942), 172-92.

⁴⁴Charles de Freycinet, *La Question d'Egypte* (Paris, 1905), 356.

⁴⁵Lord Newton, *Lord Lyons* (New York, 1913), II, 377.

of a dogged and unyielding French determination to force them to evacuate Egypt.

One French method of preventing development of an exclusive British position in Egypt was to maintain the established international controls—mainly financial and judicial—and to create still more. In 1885-86, Freycinet sought to set up an international control of the Suez Canal. His plan, presented to a specially convoked international conference at Paris (March 30 to June 13, 1885), was for a permanent international commission to guarantee at all times and to all states the free use of the canal. The British were willing enough to have guaranteed the freedom of the canal, but they did not want a system of international surveillance. In the discussions, Freycinet maintained a conciliatory attitude toward the British delegates and arguments—even when Bismarck urged a stronger stand. He dared not arouse the antagonism of the British on this specific matter, for that would increase the difficulty of realizing his basic demand on Egypt—full British evacuation.⁴⁶ The Anglo-French deadlock could not be broken, and after two and a half months, the conference adjourned, ready to take up again after Paris and London had reached agreement between themselves.⁴⁷

Freycinet kept the question before the London cabinets throughout 1885 and 1886, but he was met with unending delay. The unstable situation in London caused by the Home Rule crisis gave the British good excuse for postponing discussion with Paris of the canal question.⁴⁸ In 1886, Freycinet submitted new proposals representing considerable concession on his part: the permanent Suez commission was to be set aside and its function performed by the European representatives in Cairo. This, of course, retained the plan of international surveillance of the canal, and Rosebery and then Iddesleigh at the

⁴⁶*D.D.F.*, VI, Nos. 3, 30, 36. Ambassador Courcel at Berlin believed that Bismarck was "advising M. de Freycinet to be much more firm and exigent than appeared to be advisable" for the success of the long-run French policy. P. Knäplund (ed.), *Letters from the Berlin Embassy 1871-1874, 1880-1885* (Washington, 1944), 407-08. This judgment of his position by Freycinet should be sufficient answer to Pearl Mitchell's gratuitous assertion in her *Bismarck's Policy of Conciliation with France 1875-1885* (Philadelphia, 1936), 199, "If he [Ferry] had been present to guide the negotiations, supported by Germany and her allies, the result in all probability would have been different. Freycinet did not . . . possess either the vigor of Ferry or the confidence of the Chancellor."

⁴⁷*L.J.*, *Commission internationale pour le libre usage du Canal de Suez 1885*, 8-224.

⁴⁸*L.J.*, *Canal de Suez 1885*, Nos. 12, 14, 16.

British Foreign Office found numerous objections. There was, however, some cause for Freycinet to believe at the end of his ministry that he was wearing the British down—if only because London might hope that some definitive action on the canal problem would ease Freycinet's insistent pressure for Egyptian evacuation.⁴⁰

Freycinet had applied this pressure throughout 1885-86. At first, he was constantly assured by the London cabinets that they recognized that France had important rights and interests in Egypt and that British evacuation should be carried out soon.⁴¹ There is little doubt that Freycinet's support in the fall of 1885 for the British on the complicated Balkan problem created by the revolutionary union of Eastern Rumelia with Bulgaria⁴² was prompted by his hope that he could thus produce the atmosphere for an Egyptian settlement favorable to France. At this time, too, Freycinet was encouraged by the fact that Britain and Turkey cooperated in sending the Wolff-Moukhter commission into Egypt, ostensibly to prepare for joint pacification of the Sudan and ultimately for British evacuation. When the Wolff-Moukhtar negotiations foundered and when, in March, 1886, Moukhtar issued a separate report calling for single Ottoman intervention, Freycinet advised the Sultan that he would find "friends and supporters" in Paris if he would assert his suzerainty over Egypt, and he even urged immediate Turkish occupation of the Red Sea Sudan port of Suakim.⁴³ The Turks were unprepared for such steps, and Freycinet's urging was in vain.

These failures moved Freycinet to more vigorous measures. In the spring of 1886, he instructed his ambassador at London to declare "in clear words" that France would oppose British annexation of Egypt "by every means," and he told the French consul-general in Cairo that he was to make the French consulate a center of influence in counterbalancing Britain's position and that he was to seek every "means of circumscribing the English sphere of action."⁴⁴ Freycinet also sought

⁴⁰*L.J., Négociations relatives au règlement international pour le libre usage du Canal de Suez 1886-1887*, Nos. 1, 4, 11, 14, 17, 18, 21, 29, 31, 33. A Suez Convention was finally signed on October 29, 1888, at Constantinople; the khedive and the sultan were given the responsibility of maintaining the neutrality of the canal.

⁴¹*D.D.F.*, VI, Nos. 24, 33.

⁴²*D.D.F.*, VI, Nos. 78, 80.

⁴³*D.D.F.*, VI, Nos. 101, 160, 248, 257. *L.J., Affaires d'Egypte 1885-1893*, Nos. 2, 4, 13, 15, 16, 20, 22.

⁴⁴*D.D.F.*, VI, Nos. 204, 210, 226.

support for his Egyptian policy at the other continental capitals. At Berlin especially, in spite of his defection from the Bismarck-Ferry *entente* and the steady rise of Boulangerism, he tried very hard, even wanting Bismarck to believe in November, 1886, that the Russians had made "very extended proposals" looking toward a Franco-Russian alliance,⁵⁴ hoping thereby to push Bismarck into acting with France on Egypt. It was a fruitless policy, for Bismarck was turning definitely toward friendship with Britain, and he always demanded prior agreement between Paris and London before he would involve Germany in the question.⁵⁵ Freycinet made more reserved soundings at Rome and St. Petersburg. There was no response from the Italians, and the Russians—in spite of France's support to the Russian Balkan policy and the growing friendship—would give only a promise of moderate diplomatic backing.⁵⁶

Failure to interest the other cabinets did not deter Freycinet from a strong stand in London. Although usually he received only assurances of good-will and assertions that withdrawal from Egypt would be undertaken when Britain's "mission" and "certain definite results" were accomplished,⁵⁷ Freycinet did win the concession in November, 1886, that agreement with Paris would be sought before London negotiated with the Turks on Egyptian evacuation. This was a fundamental recognition of the French special position in Egypt, and Freycinet grasped it eagerly. He immediately presented London with a plan for British evacuation, which included setting a definite date for withdrawing the troops.⁵⁸ London quickly backtracked: the promise of prior discussion with Paris, they now said, applied only to "certain points," and at Constantinople, Freycinet learned, the British were talking of "the malevolent insinuations of certain other powers" which sought to intrude into the British-Turkish discussions of the Egyptian problem. Freycinet was bitterly disillusioned, and the British ambassa-

⁵⁴This was an exaggeration, although there was significant Franco-Russian *rapprochement* in late 1886. See this writer's "France and the Balkan Crisis of 1885-86" (cited above, n. 8), 293-99.

⁵⁵*D.D.F.*, VI, Nos. 325, 326, 329, 331, 334, 336, 343, 349, 350. *G.P.*, VI, Nos. 799, 801, 803-07, 865, 866; VI, Nos. 1200-06, 1227, 1231, 1233.

⁵⁶*G.P.*, IV, Nos. 825, 827, 829. J. V. Fuller, *Bismarck's Diplomacy at Its Zenith* (Cambridge, 1922), 118.

⁵⁷*D.D.F.*, VI, Nos. 313, 317, 324, 342. Winston Churchill, *Lord Randolph Churchill* (London, 1906), II, 172-74.

⁵⁸*L.J., Affaires d'Egypte 1885-1893*, Nos. 41, 42, 43, 47.

dor wrote that his relations with Freycinet on the Egyptian question had become "very uncomfortable."⁵⁹

Freycinet's last official words on Egypt, spoken six days before his final resignation from the Foreign Ministry, were, however, very firm. On November 27, 1886, he told the Chamber that, if "one great power" should gain exclusive control of Egypt, it would be such "a serious blow to French Mediterranean influence" that France could not tolerate it. Yet, "in spite of the aspirations imputed to our neighbors across the Channel," he said, "the English have always protested . . . that as soon as their mission is finished, they will leave . . ." He asserted strongly that France must continue to seek a solution of the Egyptian problem, so vital to the friendship of France and England and to the equilibrium of the great powers.⁶⁰

Freycinet's cabinet was reversed on a minor domestic issue, and he resigned (December 3, 1886) in spite of the wish of the President and the Chamber that he continue in office.⁶¹ Some contemporaries believed that the impasse he had reached with Britain over Egypt and the possibility that the Chamber would not sustain him in a real showdown on the question were major factors in his refusal to continue in office.⁶² Freycinet left the Quai d'Orsay with the Egyptian problem little nearer solution. His efforts, as strong as the international and domestic situations would allow, had been sincerely conceived and consistently applied. London was certainly kept aware that the matter was not closed.

II. The Far East

The most distant sphere of French imperialism was of concern to Freycinet in all three periods of his service as Foreign Minister. In 1880, he made a basic decision on Far Eastern policy; in 1882, he implemented that decision; in 1885-86, he bound the territories legally to France and successfully defended the whole program of Eastern imperialism against attack.

During the 1860's and '70's, France had won the first of its rich holdings in the Far East—Cochin-China and Cambodia. From there,

⁵⁹DDF., VI, Nos. 358, 363. Nolde, *op. cit.*, 390.

⁶⁰*Journal Officiel de la république française* (hereinafter J.O.). *Chambre* 1885, 2011-13. It was necessary and strategic for the French to keep repeating their faith in the British assurances. Any questioning of British sincerity would have fatally compromised the French position. Despagne, *op. cit.*, 323.

⁶¹Freycinet, *Souvenirs*, 362-64.

⁶²*The Annual Register* 1886 (London, 1887), 333

the French looked northward to Annam and Tonkin and to the valley of the Red River, which led into the southern provinces of China itself. The ruler of Annam and Tonkin had grudgingly recognized a loosely defined French right of protection,⁶³ but at the same time was strengthening the ancient bonds with the Chinese Empire, hoping for Chinese aid in checking the French advance northward.

In 1880, Freycinet was urged by the French agents in the Far East and by his Minister of Marine and Colonies, Admiral Jauréguiberry, to take action to clarify and to strengthen France's position in Annam and Tonkin; they warned that the Annamese were making military preparations and that Chinese troops were in Tonkin to assist in challenging the French.⁶⁴ Freycinet was convinced by them of the need for establishing French relations with Annam on "a more solid basis" and decided to dispatch a military expedition to the Red River valley.⁶⁵ His fall from power prevented execution of this decision, but to it and its consequences he and others were bound. Jules Ferry later gave Freycinet credit for resolving to affirm the French position by a military expedition, and a contemporary English publicist wrote that, though the Quai d'Orsay had been virtually a check to a forward policy in the East, "M. de Freycinet . . . believed in the revival of French supremacy in the East, and he determined to inaugurate this revival. . . ."⁶⁶

It was not until Freycinet was again Foreign Minister in 1882 that the Tonkin expedition materialized, although the Annamese-Chinese position had constantly been growing stronger. It had been finally decided in January, 1882, to send troops to reenforce the French garrison at Hanoi and to assure the free flow of French commerce—guaranteed to French merchants by treaty—which allegedly was endangered by guerrillas. Freycinet definitely intended that the troops were to be sent to the Red River only to guarantee the maintenance of established French rights and not to engage in a war of conquest.⁶⁷ Commandant Rivière, however, quite overreached these instructions, and, on April

⁶³The Treaty of Saigon (1874) Henri Cordier, *Histoire des relations de la Chine avec les puissances occidentales 1860-1890* (Paris, 1902), II, 268-77.

⁶⁴*L.J., Affaires du Tonkin 1874-1882*, Nos. 57, 58, 59, 61, 62, 65, 68. *DD.F.*, III, No. 138.

⁶⁵*DD.F.*, III, No. 14. *L.J., Affaires du Tonkin*, Nos. 64, 66, 70.

⁶⁶T. E. Ennis, *French Policy and Developments in Indo-China* (Chicago, 1936), 199. C. B. Norman, *Tonkin or France in the Far East* (London, 1884), 173.

⁶⁷*L.J., Affaires du Tonkin*, Nos. 102, 105.

25, 1882, after a show of resistance by the Annamese, he stormed the citadel at Hanoi. The French agents in the East were unable even in official correspondence to contain their delight over the forceful move, but it was less welcome to Freycinet, at the very moment engaged in assuring Peking of the pacific and commercial purposes of the Rivi re expedition. Nevertheless, Freycinet determined to accept the Hanoi incident as a *fait accompli* and to defend Rivi re. To strong protest from Peking, Freycinet's reply was a denial of Chinese suzerainty over Annam and Tonkin and a flat statement that France thus had no explanation to offer China. To his agents in the East, Freycinet indicated that every effort must now be made to prevent a strong alliance of China and Annam, but that, whatever happened, France would not alter the stand it had taken in Indo-China.⁶⁸ The issue was clearly joined.

During 1883-85, Jules Ferry carried through large-scale military action in Annam and Tonkin; in August, 1883, the ruler signed a treaty establishing a French protectorate, and in May, 1884, the Chinese imperial government recognized the French control—on paper.⁶⁹ Nonetheless, fighting continued against Tonkinese "irregulars", who were often indistinguishable from Chinese troops, and finally Ferry, desiring a definite solution, launched a series of reprisals against China itself.⁷⁰ When his Eastern imperialism expanded into a veritable war with China, the opposition of a large section of the French press and of the anti-imperialistic Right and extreme Left of the French parliament became ever more vocal and the votes of credits for the Eastern military expenses were passed by increasingly narrow margins. On March 28, 1885, French troops under Chinese attack evacuated the strategic city of Langson in northeastern Tonkin. This news was exaggerated in Paris into a disaster, the Chamber of Deputies was thrown into a panic, and, in one of the wildest parliamentary sessions in the history of the Third Republic, Ferry was hurled from power.⁷¹ The *Revue des deux mondes*, representing very general French opinion, wrote that Ferry's fall was "only the sad and inevitable consequence of the direction given

⁶⁸L.J., *Affaires du Tonkin*, Nos. 106, 108, 110, 112, 116-20, 122-25.

⁶⁹Texts in Cordier, *op. cit.*, 387-92, 435-36.

⁷⁰War was not declared, but the French captured the forts near Foochow, bombarded cities in Formosa, blockaded the southern coast of China, and practically destroyed the Chinese fleet. Schuman, *op. cit.*, 82-93.

⁷¹*J O Chambre 1885*, 703-08. A. Rambaud, *Jules Ferry* (Paris, 1903), 360-70. Schuman, *op. cit.*, 94-95. Carroll, *op. cit.*, 102-03. Power, *op. cit.*, 187-90.

our affairs in the Far East," and that the new cabinet must reject Ferry's Eastern policy and refrain from "dangerous adventures."⁷²

It was at this critical juncture that Freycinet returned to the Quai d'Orsay. The whole future of France as an imperial power was in jeopardy as a result of the vote of March 30. The overthrow of Ferry represented a real revolt of French opinion against those "distant expeditions" and "obscure adventures" which allegedly dissipated French treasure and spilled French blood in useless enterprises far removed from the area of true French interests, and for which Ferry had effected *rapprochement* with Germany and had become "the tool of the German Chancellor."⁷³ An English contemporary believed that Freycinet "has not M. Ferry's audacity, and perhaps not his unscrupulousness. . . . He will hardly dream of founding empires in Indo-China or of annexing huge new colonies like the Island of Madagascar."⁷⁴ Yet those two things were precisely what Freycinet was to do. For, in spite of the demand to "liquidate" and in spite of the growing tenseness in Franco-German relations⁷⁵ which seemed to dictate complete French concentration in Europe, Freycinet's decision to guard that which had been won preserved and expanded Ferry's conquests.⁷⁶ The parliament and the country would almost certainly have followed Freycinet in withdrawal from the Far East—and from Madagascar⁷⁷—if he had so led.

Freycinet's first steps were not difficult. The treaty of protection which Ferry had negotiated with Annam⁷⁸ had not been ratified by the French parliament, and Freycinet presented it to the chambers. The opposition denounced the treaty as "disguised annexation," and they called upon the new cabinet to desert the Ferry imperialism completely. Freycinet, on very sure and logical ground, answered that the military conflict had forced the government to consider the treaty as in operation

⁷²*Revue des deux mondes*, LXVIII (April 1, 1885), 706-08, 947, 950-51.

⁷³Bismarck's conciliation policy toward France reached its climax in 1883-85 with his support for Ferry's colonial program. Langer, *European Alliances*, 299-306, 317-18. Wienefeld, *op. cit.*, 145-52. Mitchell, *op. cit.*, 138-41.

⁷⁴*The Spectator*, LVIII (April 4, 1885), 441.

⁷⁵The Franco-German colonial *entente* ended with Ferry's fall. Its breakdown was due about equally to Bismarck's decision and to Freycinet's, *Souvenirs*, 298-99.

⁷⁶Freycinet had supported Ferry's Far Eastern imperialism, but he believed Ferry had underestimated the difficulties and that the parliament had resented Ferry's imperiousness on colonial questions. *Souvenirs*, 266-67, 283-84.

⁷⁷See below, pp. 276-82.

⁷⁸See above, p. 272.

for over a year, and that failure or delay in ratification would leave unclear the situation in Annam which France was demanding that China recognize. Ratification was easily obtained.⁷⁹

Negotiations with China for an end to hostilities had been far advanced by Ferry,⁸⁰ and, in spite of the defeat at Langson, the result was an armistice agreement on April 4 and a definitive treaty signed at Tientsin on June 9. All for which France had contended was contained in the treaty: China recognized French protection over Annam, and, in addition, France was accorded important concessions in the economic exploitation of the southern Chinese provinces bordering on Tonkin.⁸¹ To the anti-imperialist criticism in the chambers that the treaty was a component of the discredited Ferry imperialism, Freycinet answered, quite relevantly, that the immediate question was only that of clarifying Franco-Chinese relations. Heavy majorities voted ratification.⁸²

Freycinet's task became more difficult after the parliamentary elections in October, 1885. The conservatives obtained 180 seats in the Chamber of Deputies—a doubling of their previous strength—and the balance of power in the new Chamber was held by radical republicans, who could be more fiercely anti-imperialist than the Right.⁸³ Some declared that this was ample evidence of strong popular opposition to the colonial policy and that the cabinet was now bound to renounce Tonkin and Madagascar.⁸⁴ Freycinet faced the issue squarely. In November, he asked the new parliament for eighty million francs for the administration and defense of French Indo-China.⁸⁵ A contemporary editor appraised the situation exactly: "It is no less a question," he wrote, "than if France will continue to hold the possessions acquired in Indo-China or if our flag will be quietly withdrawn from those shores."⁸⁶ The committee of the Chamber which studied the proposed credit reported in favor of a much smaller amount, tantamount to a

⁷⁹J. O. *Chambre 1885*, 747-51, *Sénat 1885*, 630-35.

⁸⁰Freycinet hailed Ferry's "courage and patriotism" in not prejudicing the negotiations by revealing them to save his cabinet on March 30. *Souvenirs*, 284.

⁸¹L.J., *Affaires de Chine et du Tonkin 1884-1885*, Nos. 207, 215, 252, 281

⁸²J. O. *Chambre 1885*, 1180-83, 1329-44, *Sénat 1885*, 876-91.

⁸³E. Lavisse and A. Rambaud, *Histoire générale* (Paris, 1901), XII, 34-35. Freycinet, *Souvenirs*, 311-12, 315-17.

⁸⁴Charles Mazade, *Revue des deux mondes*, LXXI (October 15, 1885), 948; Yves Guyot, *The Nineteenth Century*, XVIII (December, 1885) 967, 975.

⁸⁵A few millions of this credit was for Madagascar

⁸⁶Mazade, *Revue des deux mondes*, LXXII (December 1, 1885), 709-10.

declaration for the gradual withdrawal of French forces and influence from the East.⁸⁷

Quite literally, the French empire was at stake in the four days of debate in the Chamber on the credit. Freycinet's address on the last day (December 24, 1885) was a highly creditable performance and the appeal of an eminently practical man. The deputies were in no mood for an eloquent defense of imperialism, and Freycinet's approach was one of studied and persuasive logic. He claimed that France was bound to carry to completion the colonial enterprises already undertaken. Legally, he said, France could not evacuate Annam and Tonkin, for the French position was fixed by treaty. He promised a quick organization of these territories on a civil basis. He asserted that maintenance of the Far Eastern protectorates was consistent with the reserved foreign policy demanded by most Frenchmen, but that the summary dropping of these responsibilities would deliver Indo-China into anarchy and would irreparably damage French prestige in Europe and the East.⁸⁸ The balloting was an extremely narrow victory for Freycinet. In favor of granting the full credit he had requested were 274, opposed 270.⁸⁹ Freycinet recorded, "It required the shift of only two votes to force the abandonment of Tonkin."⁹⁰ After victory in the Chamber, the vote in the Senate was more easily won: 225 to 61.⁹¹

Freycinet proceeded to organize Annam and Tonkin on lines hitherto unknown in French colonial administration. The protectorates were granted a considerable degree of autonomy in place of traditional French centralization,⁹² and, to the post of French resident-general, Freycinet appointed Paul Bert. Bert proved himself an administrative genius,⁹³ and Freycinet's promise of an early pacification in the East was kept. In mid-1886, Gabriel Monod wrote that, whereas in the previous year few had believed that France was right in remaining in

⁸⁷A. Daniel, *L'Année politique 1885*, 252-56, 268-72. *The Annual Register 1885*, 219-20.

⁸⁸This line of argument received much support from French editors—e.g., *Journal des économistes*, XXXII (December, 1885), 474, *Revue des deux mondes*, LXXII (January 1, 1886), 226-29.

⁸⁹*J.O. Chambre 1885*, 365-94.

⁹⁰*Souvenirs*, 322.

⁹¹*J.O. Sénat 1885*, 1390-96.

⁹²Despagnet, *op. cit.*, 388. L. Hosotte, *Histoire de la troisième république* (Paris, 1910), 459.

⁹³For the work of Bert, see Priestley, *op. cit.*, 227, and Freycinet, *Souvenirs*, 356-57.

Indo-China, now imperialism was almost popular again.⁸⁴ The anti-imperialist groups in the Chamber continued on occasion to harass Freycinet on Eastern affairs, but there was no danger in 1886 of a renunciation of Indo-China. The battle had been won in the East and at home by the time Freycinet left the Quai d' Orsay.

During the year, however, Freycinet was called upon to defend an established French interest in the East against challenge from a rather unexpected source. Since the first treaty settlement with China in 1884, France had exercised a protection of Catholic interests in the Chinese Empire. Early in 1886, smarting under the French successes in Indo-China, Peking asked the Vatican to send a papal nuncio to Peking to assume this responsibility. It was manifest to Freycinet that the Chinese sought primarily to strike at the privileged French position⁸⁵; in fact, the right of Catholic protection had become such a vested interest for France that "the sending of a nuncio to Peking would have been considered by the whole world as a great check for [French] policy . . . and a very severe blow to [the French] diplomatic situation in Asia."⁸⁶

Freycinet used every diplomatic weapon at his command. He allowed Pope Leo XIII to understand that he was prepared, if the nuncio were sent, to break diplomatic relations with the Holy See, and he threatened, less openly, more republican anti-clerical legislation, curtailment of the subvention of fifty million francs, and the termination of the Concordat.⁸⁷ In September, the Pope finally announced his decision not to send a nuncio to Peking. The French ambassador at the Vatican wrote Freycinet, "It is victory for us, incontestable victory. . . . How very satisfied you must be with the outcome."⁸⁸

III. Madagascar

In the nineteenth century, after suffering eclipse for a time, the longstanding ambitions of France in Madagascar were revived. Any hope of French exclusive control of the great island, however, was challenged by the chief Malagasy tribe, the Hovas, who lived in the southern and the east-central parts of the island and who were, in a

⁸⁴*The Contemporary Review*, XLIX (June, 1886), 882.

⁸⁵*D.D.F.*, VI, No. 214.

⁸⁶G. Cogordon, "Les missions catholique en Chine et le protectorat de la France," *Revue des deux mondes*, LXXVIII (December 15, 1886), 790.

⁸⁷*D.D.F.*, VI, No. 283. R. Alcock, "France, China, and the Vatican," *The Nineteenth Century*, XX (November, 1886), 617.

⁸⁸*D.D.F.*, VI, No. 310.

limited sense, British protégés. In the 1840's, the northwestern tribes, the Sakalaves and Antankares, placed themselves under French protection, thus to withstand the threat of Hova—and possibly ultimate British—control. Slowly the French political and commercial position expanded, but, in the late 1870's and the early '80's, there developed a concerted effort by the Hovas to wreck the privileged French position and to gain dominance themselves over Madagascar.

At the time of his first ministry in 1880, Freycinet was not prepared to employ coercive measures, and he counseled "patience, deference, and circumspection."⁹⁹ By 1882, however, the French consul at Tananarive, the Hova capital, was warning that France must meet the Hova challenge "or abandon Madagascar"; and Freycinet, though immersed in the Egyptian crisis, gave considerable attention to Madagascar. He wrote, "We must establish our rights in a definite and precise fashion, and be prepared to uphold them energetically." He told the Hovas that he would use "every means" to enforce recognition of France's privileged position; he sent several warships from the Indian Ocean naval squadron to Malagasy waters in a typical naval demonstration; and he was conferring with his Minister of Marine as to further necessary measures, when he left the Quai d'Orsay.¹⁰⁰ This was the inauguration of a policy contemplating coercion. As in the Far East, Freycinet's moves in 1882 were the prelude to a definitive solution in 1885-86.

Jules Ferry sent a military expedition to Madagascar in 1883-85, but, even more than in the Far East, he left his work unfinished.¹⁰¹ Ferry's efforts in Madagascar were weakened by the necessity of his concentration in the East; and his moves—in the face of large-scale Hova resistance backed, the French public was convinced, by Britain¹⁰²—were quite inadequate to bring a satisfactory result.¹⁰³

⁹⁹D.D.F., III, No. 217.

¹⁰⁰L.J., *Affaires de Madagascar 1881-1883*, Nos. 5, 6, 8, 9, 10, 13, 15. D.D.F., III, Nos. 305, 362.

¹⁰¹Bismarck gave Ferry his blessing in Madagascar as he had in the Far East. D.D.F., V, No. 23.

¹⁰²This support of the Hovas was by English missionaries and traders in Madagascar, and not by the London cabinet. London several times offered Paris British mediation of the Madagascar difficulties and protested indignities suffered by British citizens in Madagascar, but it held to a strict official neutrality, fearful of adding another area of friction to the strained Anglo-French relations. H. J. Wood, *England, France, and Madagascar, 1880-1895* (unpublished thesis, University of Wisconsin, 1934), 16-69.

¹⁰³S. H. Roberts, *History of French Colonial Policy 1870-1925* (London, 1929), I, 380-81.

When he returned to the Foreign Ministry in 1885, Freycinet adopted as his own the general policy advocated by the two chief French agents in the area, Admiral Miot, naval commander in the Indian Ocean, and Baudais, French consul in Madagascar. They believed that a prompt solution of the Madagascar troubles was vital, but neither wanted a large-scale military expedition nor a full conquest of the island. Such, they said, would be very expensive, would arouse the anti-imperialist tempers in Paris, and would stimulate even stronger anti-French feeling among the Hovas. Rather, Miot and Baudais agreed, a simple protectorate granting France control of Malagasy foreign relations, extraterritorial rights, and economic concessions would bring peace and an end to the anomalous situation.¹⁰⁴

In July, 1885, Freycinet requested from the parliament a 12,190,000 franc credit for Madagascar. As with the great debate on Indo-China in December, the discussion of French imperial policy that ensued was significant for the whole French colonial empire. To the critics of imperialism who charged that the activity in Madagascar was a degrading opportunism, a series of half-measures, and a continuation of the repudiated Ferry policy, Freycinet answered that "every consideration of honor, dignity, and national pride" made it impossible for France to withdraw from Madagascar. He maintained that he intended only the protection of acquired French rights, but that refusal of the credit would mean complete abandonment of the island; he did not reveal his plan of establishing a French protectorate. Jules Ferry took the occasion for a classic defense of imperialism, and he praised Freycinet's stand on Madagascar, which, he said, honorably continued the policy which Freycinet himself had inaugurated in 1882. The credit was voted by the Chamber by 277 to 120 and by the Senate 197 to 23.¹⁰⁵ Freycinet now had the means to push his negotiation for the protectorate.

There was a temporary check when Baudais suddenly revealed to Freycinet (August 27, 1885) that, on his own responsibility, he had been carrying on negotiations with the Hovas for several months, and that he had submitted a strong treaty establishing French protection which had been flatly refused. Baudais had apparently sought to pre-

¹⁰⁴L.J., *Affaires de Madagascar 1884-1886*, Nos. 26, 29.

¹⁰⁵J.O. *Chambre 1885*, 1613-89, *Sénat 1885*, 1097-1102. P. Robiquet, *Discours et opinions de Jules Ferry* (Paris, 1897), V, 172-220.

sent the Quai d'Orsay with a *fait accompli*¹⁰⁶; now he wrote despairingly, "We must abandon all hope of arriving by pacific means at any convention or treaty whatever . . ." ¹⁰⁷ Freycinet realized that Baudais's unauthorized action threatened the ruin of his whole plan, but he was not ready to accept his counsel of despair. Baudais was recalled,¹⁰⁸ and his successor, Patrimonio, took with him to Madagascar Freycinet's draft treaty, a more circumspect document than Baudais had tried to force upon the Hovas.¹⁰⁹ The anti-imperialist character of the October elections¹¹⁰ did not alter Freycinet's plans. He intended to face the parliament and the French people with a *fait accompli* of his own.

Patrimonio was successful. The Hovas apparently understood that Freycinet's limited protectorate was the best decision they could obtain in the long run, and that, with the quieting of the situation in the Far East, French effort could expand and French ambition increase in Madagascar. On December 17, 1885, signatures were affixed to a treaty which established a French protectorate in fact, if not in name; a French resident at the Malagasy court would conduct Madagascar's foreign relations; French citizens would enjoy extraterritoriality; French troops would provisionally occupy Tamatave and permanently the excellent harbor at Diégo Suarez; French instructors and engineers would be received by the Hovas.¹¹¹ Freycinet received the news of the signature of the treaty in the midst of the great Chamber debate in December on the credits for Indo-China.¹¹² He was able to present the fact of a Madagascar settlement at that dramatic moment.

Ratification of the treaty in February, 1886, was never in doubt. The usual opposition was split: many Rightists, remembering the advances in Madagascar under the monarchy and the Second Empire, now found the treaty insufficient; some of the extreme Left considered it too advanced and feared that France would be embroiled constantly with

¹⁰⁶Schuman, *op cit*, 161 n., believes that Baudais may not have acted wholly in secret and that calculated omissions from the *Livre Jaune* may have been intended to strengthen the Government's case.

¹⁰⁷*L.J., Affaires de Madagascar 1885-1886*, No. 36.

¹⁰⁸*L.J., Affaires de Madagascar 1885-1886*, No. 41. Freycinet was especially disgusted at Baudais's use of the Italian consul as his intermediary with the Hovas. Since the Tunisian incident and the Triple Alliance, Italian aid for French imperial expansion was hardly logical.

¹⁰⁹*L.J., Affaires de Madagascar 1885-1886*, Nos. 31, 35, 40.

¹¹⁰See above, p. 274.

¹¹¹*L.J., Affaires de Madagascar 1884-1886*, Nos. 46, 49, 50, 57.

¹¹²See above, p. 275.

other powers. Between these extremes, Freycinet's program was quite safe. In Indo-China, he told the Chamber, he had established full protectorates as conditions demanded, but in Madagascar he had for the time being simply guaranteed that the island would not fall into the hands of another power. Freycinet said that he wanted the Hovas to be guided by "French moral influence," which, he declared, built more securely than military conquest. Such was "a great role, a pacifying and civilizing role, a role worthy of France . . ." The present treaty, he admitted, was only "the preface of a solution," but it left "the future completely open," and, in a few years, France would realize "the pacific conquest of the country." Ratification was granted 436 to 28 in the Chamber, *viva voce* in the Senate.¹¹³

During 1886 Freycinet was called upon to defend the newly won position in Madagascar. The Hova government obtained from Patrimonio and Miot in January a letter, quite unauthorized from Paris, defining the powers of the French resident in a very limited sense and very narrowly construing the French control of Malagasy foreign relations.¹¹⁴ The Hovas, in spite of Freycinet's protestations, insisted that the Miot-Patrimonio letter was an integral part of the treaty, and, in early summer, they sent Digby Willoughby to London as their agent to arrange a loan. On Freycinet's order, the French embassy in London published in English newspapers a notice to the effect that France exclusively directed Malagasy foreign relations and that any financial credit extended to Madagascar without French intermediation would be held invalid by the French government.¹¹⁵ Nevertheless, Willoughby arranged with an English syndicate for a loan of 20,000,000 francs. Freycinet protested to the Foreign Office in London and complained sharply too of the attitude of British agents in Madagascar. Lord Iddesleigh, unwilling to add another element to the strained Anglo-French relations, promised quickly that he would insure that the English in London and in Madagascar conformed to the French interpretation of the new status of Madagascar.¹¹⁶ By the end of the year, the Hovas too had capitulated. Willoughby was dismissed, his loan repudiated, and a new loan negotiated with a French company.¹¹⁷ In November, when

¹¹³J.O. *Chambre* 1886, 304-39, *Sénat* 1886, 337-46.

¹¹⁴Daniel, *L'Année politique* 1886, 228-29.

¹¹⁵*Ibid.*, 184-85. Despagne, *op. cit.*, 362.

¹¹⁶*D.D.F.*, VI, No. 315.

¹¹⁷Daniel, *op. cit.*, 306.

Freycinet was granted the funds for the protectorate for 1887, he told the Chamber that any other attempt to break down the French influence would be met with the same vigor and determination to keep intact the position in Madagascar.¹¹⁸

Freycinet's Madagascar settlement was criticized by some contemporaries and by some historians¹¹⁹ as "vague," lacking "essential clauses," the kind of arrangement which had not worked well in Annam in 1874 or in Tunis in 1881, and which, ten years later, was set aside for a full protectorate following military conquest of the island. Yet Freycinet believed for two reasons that his settlement was the correct solution in 1885. First, his public statements show that he viewed the treaty of 1885, not as a definitive arrangement, but as a significant advance in a constantly expanding French position in Madagascar.¹²⁰ Secondly, Freycinet believed that the French parliament and people were willing in 1885-86 to accept no more than a limited French commitment in Madagascar. The protests over the Indo-Chinese military activity, the opposition to the Madagascar enterprise expressed in the credit debate in July, 1885, and the anti-imperialist turn of the October, 1885, elections convinced Freycinet that he must move cautiously if he was to avoid a colonial crisis similar to that of March, 1885, which might mean the abandonment of Madagascar. The easy ratification of the December treaty demonstrates how well he had understood his position. That most of the opposition came from those favoring a stronger French protectorate must have greatly satisfied him: there was no better guarantee that a stronger control in Madagascar would eventually be gained. Tribute to Freycinet's careful judgment was paid by Gabriel Monod. While the Madagascar negotiations were in progress (December, 1885), he had written critically, "Gifted, indeed, must he be who can discern what is the foreign policy of M. de Freycinet." But, after the settlement (June, 1886), he wrote quite differently,

In Madagascar, M. de Freycinet has had the prudence not to insist upon impossible concessions, but to content himself with modest but solid advantages.

¹¹⁸J.O. *Chambre* 1886, 2049-50.

¹¹⁹*L'Economiste français*, I (February 6, 1886), 161-63; *Le Correspondant*, CXLII (February 25, 1886), 617; *The Saturday Review*, LXII (December 4, 1886), 739. Despagne, *op. cit.*, 360-61. Priestley, *op. cit.*, 305.

¹²⁰See above, p. 280. The American minister in Paris wrote to Washington that France expected to assume "a full and unqualified protectorate over the whole of the island of Madagascar," and that the treaty "if skillfully availed of, must place the whole island under the control of France." *Papers relating to the Foreign Relations of the United States 1886*, No. 142.

The cession of the Bay of Diégo Suarez gives a valuable acquisition to our fleet; . . . the powers to be exercised by the French Resident at Tananarivo will enable him to make French influence dominant throughout the island. . . . The colonial policy of M. Ferry has been skilfully and steadily carried out by M. de Freycinet.¹²¹

Jules Ferry's biographer¹²² claims that Ferry's fall on March 30, 1885, brought into power in France ministers who defended the colonial program with little enthusiasm and who compromised it irredeemably. In Egypt, he says, Ferry's plan of European pressure to force English evacuation was abandoned; in the Far East, Annam and Tonkin were held, but Ferry probably would have kept Formosa and the Pescadores; in Madagascar, Ferry would not have been satisfied with a half-way protectorate; in central Africa, Ferry would have followed up the French explorers more vigorously.¹²³

Ferry almost certainly would have sought to accomplish these ends if he had retained the confidence of the French parliament and people—but this he failed to do. His fall from power on the issue of Far Eastern imperialism made it impossible for him or for anyone using his methods to attain his ends. After March 30, 1885, Freycinet, who had earlier prepared the way for Ferry's expeditions in Tunis, Indo-China, and Madagascar, recognized it as absolutely necessary, if the wreck of Ferry's fortunes was not to mean the wreck of the colonial empire, that he pursue the imperial policy with circumspection. Impressing the British that France had not resigned itself to British control in Egypt, winning an advantageous peace with China, and organizing and gaining French acceptance of the protectorates in Indo-China and Madagascar, together with his earlier defense and expansion of French interests in Morocco and Tunis—all done in spite of an ultra-sensitive French fear of complications, a highly unstable parliamentary situation, and a developing tenseness in continental relations—are achievements which rank Freycinet with the most forward of the nineteenth-century imperialists.

¹²¹*The Contemporary Review*, XLVIII, 895; XLIX, 882.

¹²²A. Rambaud, *op. cit.*, 386-87.

¹²³Archinard, Gallieni, Binger, Brazza, Ballay negotiated numerous treaties with African native chiefs at this time. Freycinet entered into a number of agreements delimiting African territory—e.g., treaties with Germany (December, 1885) and with Portugal (February, 1886). Freycinet pushed the decisions of the conference of Berlin concerning the Congo (February, 1885) through the French chambers.

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